WILLIAM & MARY DARLINGTON
MEMORIAL LIBRARY
UNIVERSITY OF PITTSBURGH

UNIVERSITY OF PITTSBURGH

[7C6.x5
Pr
1899]

CRUCE DUM SPIRO SPERO

Darlington Memorial Library

Present to Matt Byrne

REPORT

OF THE BOARD OF

Canal Commissioners,

TO THE

SENATE OF PENNSYLVANIA,

DECEMBER 18, 1829

HARRISBURG:

PRINTED BY WELSH AND MILLER.

1829.

REPORT

OF THE

CANAL COMMISSIONERS.

READ IN SENATE—December 18, 1829.

The Canal Commissioners of Pennsylvania, respectfully submit the following report.

The act to provide for the commencement of a canal, to be constructed at the expense of the state, and to be styled the Pennsylvania canal, was passed on the 25th of February, 1826. This act contained an appropriation for the purpose, of $300,000. To this sum the legislature has added, since that period, by annual appropriations, $6,000,000, making the whole sum appropriated, for canal and rail-road purposes, $6,300,000. In addition, there has been placed to the credit of the treasurer of the board, the loans negotiated by the Governor since the first of October last, to meet the pressing demands upon some of the divisions, amounting to $106,000.

The whole distance of the Pennsylvania canal, authorised to be constructed by the several acts of assembly, and placed under contract prior to the first of June, 1829, is 419½ miles. Nine miles have been placed under contract since that period, making the whole distance now under contract, 428½ miles, viz:

From Pittsburg to Johnstown,	104 miles.
From the mouth of the Juniata to Smith's mills, above Huntingdon,	90
From Middletown to Muncy hills, upon the west branch of the Susqehanna, and including ten miles placed under contract between Middletown and Columbia,	100
From Northumberland up the north branch of the Susquehanna to Nanticoke falls,	55
From Bristol to Easton,	60
From Bemus's mill, on French creek, to Muddy run,	19½

Of this distance 195 miles are navigable, viz:

From Pittsburg to the head of the dam at Blairsville,	75 miles.
From the mouth of the Juniata to Lewistown,	45
From Middlestown to Clark's ferry,	24
From the mouth of the Juniata to Northumberland,	41
On the French creek feeder,	10

A great portion of the remaining 233½ miles is nearly finished, and the whole is in a state of rapid progress to completion.

6.28 Literature 357784 2.75 Darlington, Bindery

The sum required to pay the debts due upon the respective divisions of the canal, according to the reports of the acting commissioners and superintendents, is	$1,398,790 67
And the whole amount of work, of every description, yet to be done upon the several divisions, as estimated by the principal engineers, is	2,060,742 39
The amount already expended, is	6,406,000 00
	$ 9,865,533 06

Of which sum, there has been paid $ 47,132 73½ for damages, and $ 95,000 upon the Pennsylvania rail-way; leaving $ 9,723,400 33 expended, and to be expended, in the construction and completion of 428½ miles of the Pennsylvania canal, including the expenses of the board of canal commissioners, and the daily pay and salaries of the acting commissioners, superintendents, engineers, and other agents.

The cost of this immense public work, will be found, upon comparison, not to exceed in any material respect, the cost of similar works in this country, and although it presents a formidable sum, when viewed separately from the beneficial effects it is calculated to have upon the value of land, the trade, the industry, and the enterprize of the citizens of the commonwealth; yet, when viewed in connexion with those great and enduring benefits, policy and the best interests of the state, pronounce it a necessary and judicious expenditure. Regarded only as an investment of funds, it presents satisfactory inducements to the most eager lover of gain.

When the connexion between the eastern and western waters shall have been completed, Pennsylvania will present to the trade of the western country, an avenue to the Atlantic coast, equal, if not superior, to any which has been, or can be constructed; besides, her own manufactures and agricultural products, which will seek a market through the canal, are equal in amount to those of any other state, independently of her coal, iron, salt and lumber, which in tonnage, must exceed all other articles transported to market.

The Erie canal, extending from Albany to Buffaloe, 363 miles, yielded toll in the year 1828, to an amount upwards of $ 2,000 per mile. Now, if the New York canal, before its advantages can be said to have been fully developed, yielded in one season upwards of $ 2,000 per mile, what will be the amount of toll upon the Pennsylvania canal, where, in addition to all the tonnage which can seek a market in the state of New York, we have iron to an immense amount, and coal, which alone, surpasses all calculation?

But the advantages of this great public work, are not to be measured by the interest it will yield upon the money expended; it adds an intrinsic and permanent value to the commonwealth, independently of the profits arising from tolls. Facts existing in our own state, abundantly prove, that the additional value of the territory bordering upon canals, more than equals the whole amount expended in their construction. It is believed, and the belief rests upon practical results, that the owners of the soil in

Schuylkill county, before the canal to Philadelphia was made, would have advanced their private interest by making the improvement at their own expense, the additional value to their lands arising from the canal, would have exceeded in amount the whole cost. If we apply such facts to the Pennsylvania canal when extended through the inexhaustible anthracite coal fields of the North Branch; the iron and bituminous coal region of the Juniata and West Branch, to the Pennsylvania salt works, and affording facilities for the transportation to Philadelphia, of the immense coal tonnage of the Lehigh and other branches of the Delaware, and opening avenues for the commerce of the rich vallies of the Ohio, the Mississippi, and the extensive regions bordering upon the lakes of the north and north west, independently of the manufactures and agricultual products which every where surround this improvement, the certain result, while it must flatter the pride, will multiply the wealth, strengthen the physical force and increase the moral influence of the state.

With these views in relation to the subject, the board can have no hesitation in recommending the vigorous prosecution of the great system of improvement, as heretofore marked out by the Legislature; a system perhaps as perfect as could be projected, to develope and bring into activity the resources of the state, and to unite every section of this great commonwealth in one common bond of interest and of feeling.

The sums appropriated for canal and rail road purposes, have been expended upon the several divisions, as follows:

From Pittsburg to Johnstown, 104 miles, including $5,242 39½ cents paid for damages,	$2,036,264 61
From the mouth of the Juniata to Smith's mills above Huntingdon, 90 miles, including $6,729 25 paid for damages,	1,130,477 81
From Middletown to Muncy hills, upon the West Branch of the Susquehanna river, and including ten miles placed under contract, between Middletown and Columbia, 100 miles, including $22,300 29 paid for damages,	1,944,302 18
This includes that portion of the Pennsylvania canal which is now comprised in the eastern division, and the Susquehanna and west branch division; Mr. Mowry having had under his care at one period, the eastern and Susquehanna divisions, the expenditures were blended.	
From Bristol to Easton, 60 miles, including $6,526 82 paid for damages,	476,338 92
From Northumberland up the north branch of the river Susquehanna, to Nanticoke falls, 55 miles, including 2,464 07 paid for damages,	425,265 53
From Bemus' mill, on French creek, to Muddy run, 19½ miles, including $3,800 62 paid for damages,	209,603 72

Pennsylvania rail way, the road formation of forty miles having been placed under contract, including $69 29 paid for damages,	50,000 00
The late board paid under the act of 24th March, 1828, for surveys and explorations,	19.757 23
The present board received on account,	2,000 00
The commissioners of the internal improvement fund have paid engineering expenses, &c. to the amount of $5,990 00, which sum was refunded out of the canal fund,	5,990 00
	$6,300,000 00

To which sum must be added, the late loans made by the Governor, expended as follows :

Upon the Pennsylvania rail road,	45,000
Juniata division,	25,000
North Branch division,	10,000
Susquehanna division,	20,000
French creek feeder.	6,000
	$ 106,000

The amount due for work done upon the several divisions under contract, and the estimated cost of work yet to be done, are according to the reports of the acting commissioners and engineers, as follow :

Western Division :	
Debts due,	114,737 26
Amount of certificates issued,	140'340 99
Estimated cost of work to be done,	351,280 91
Juniata Division:	
Debts due,	148,664 66
Amount of certificates issued,	241,368 61
Estimated cost of work to be done,	693,582 55
Eastern, Susquehanna and West Branch Divisions :	
Debts due,	144,122 51
Amount of certificates issued,	150,383 88
Estimated cast of work to be done,	296,301 13
Delaware Division:	
Debts due,	40,676 93
Amount of certificates issued.	141,353 11
Estimated cost of work to be done,	335.576 25
North Branch Division:	
Debts due.	62,450 29
Amount of certificates issued,	167,000 00
Estimated cost of work to be done,	225,855 00

French Creek Feeder :	
Debts due,	26,260 00
Estimated cost of work to be done,	45,000 00
Pennsylvania Rail-way :	
Debts due,	16.468 38
Amount of certificates issued,	4,964 05
Estimated cost of work to be done upon the 40 miles road formation under contract,	113,146 55¾

From this review and estimate, it appears that there is now due upon the several divisions of the Pennsylvania canal, under contract, the sum of $1,399,790 67, for $845,410 64 of which certificates have been issued. That the amount of work to be done upon the several divisions of the canal and rail road, now under contract and in progress of completion, as estimated by the principal engineers, is $2,060,742 39½. The nature of these demands upon the commonwealth, requires that they should be promptly liquidated. A moments reflection will show that unrewarded labour, to so large an amount as is now due, brings upon the enterprising contractor inevitable ruin, and deprives, particularly at this season of the year, a valuable portion of the community of their only means of subsistence.

Owing to the delays and interruptions incident to a work of this magnitude, the finished portions of the canal were not prepared for navigation until late in the season; by letting in the water the work was tested, and the weak points were ascertained; the work generally has fully answered the expectations of the board. Repairs in many instances have been made, and every precaution has been taken by the respective acting commissioners and superintendents, to guard against accidents, and secure the permanency and usefulness of the canal. Small sums have been received as toll upon the western and eastern divisions. The navigation has hitherto been more a matter of experiment than a regular business, but it has confirmed the opinion entertained of the ultimate value and utility of this great public work. It is believed the amount of tolls which will be received within the ensuing year, on the divisions of the canal now navigable, may be fairly estimated as follows:

On the Western division,	$30.000
Juniata division,	13,000
Eastern division,	10,000
Susquehanna division, including the bridge at Duncan's Island,	12,000
	$65,000

It is obvious, that an immense increase must ensue from the completion of other lines connecting the improvements, and from new channels of trade being established.

The powers which the canal commissioners now possess, are limited to a general superintendency, management and direction, in the location and construction of canals and rail roads; the appointment of officers and agents for that purpose, and the adjustment of claims for damages, &c. and when any part of the Pennsylvania canal shall be finished and in a state for navigation, they may appoint collectors of tolls and fix their location, and order and direct the rates of toll. It will be apparent, that with such limited powers, it is impossible for the board to adopt any code of rules and regulations applicable to the complicated and various transactions connected with the navigation of the canal and the collection of tolls. A rule or regulation which cannot be enforced is worse than useless. The board have no power to enforce any regulation by penal sanctions.

Near 200 miles of the canal will be navigable at the commencement of the next season, and the greatest part of that contracted for, will be navigable during the next summer, if means are provided to carry on the work. Hence the legislature will perceive the necessity of adopting a system of regulations and penalties, concerning the navigation of the canal and the collection of toll; the views of the board upon this subject are expressed in a system of rules acompanying this report.

The provisions in relation to damages, require legislative revision. As the law now stands, the feelings and prejudices of the country through which the improvements pass, too often constitute the only standard by which damages are measured, a standard uncertain and unequal, as it relates to individuals concerned, and frequently unjust as it regards the commonwealth. It is respectfully recommended to the legislature, to provide for the appointment of appraisers by the executive, who shall receive and decide upon all applications for damages done to real property, in consequence of the construction of the Pennsylvania canal or rail road, and who shall in their estimate, take into consideration the advantages and disadvantages of such improvements to the whole real estate of the individual claiming damages, wherever situated, with the right of appeal to either party to the supreme or circuit court.

Upon nearly all the divisions of canal, it is believed there is at various points, and particularly at and near the feeder dams, a very large amount of surplus water, which might be advantageously applied to hydraulic purposes: as no adeadequate provision has been made for the sale of such surplus water, and as it is believed that a very considerable revenue may be annually derived from this source, the expediency and propriety of making provision for the sale of hydraulic privileges, is most respectfully suggested.

The present canal commissioners met, in pursuance of the act by which they were appointed, on the first day of June 1829.—David Scott was appointed president, and Francis R. Shunk, secretary.

For the measures adopted by the board upon its organization, in the appointment of acting commissioners and superintendents, upon the several divisions of the canal and rail road, the appointment of principal engineers, and the arrangement of their different corps, and the fixing the compensation of the various officers, agents and persons employed in the service of the state, reference is made to the journal of the board which accompanies this report, as required by law.

The balance of the appropriation for canal and rail road purposes, made by the legislature, at the last session, and not expended by the late board, was found to be $1,407,704 30, which sum was received by the present board and its agents, during the past season, in the following proportions.

James S. Stevenson, upon the Western division,	$214.305 99
James Clarke, Juniata division,	305,336 40
John Forrey, jr. Eastern division,	163,282 32
John Ryon, jr. Susq. and W. Branch division,	232,175 14
Thomas G. Kennedy, Delaware division,	206.338 92
John Mitchell, North Branch division,	189,265 53
William Dickson, French Creek feeder,	45.000 00
John Barber, Pennsylvania rail way,	50,000 00
The board of canal commissioners,	2,000 00
	1,407,704 30

As a material portion of this sum was applied to the payment of debts then due, the balance was found to be entirely insufficient to enable the board to meet the expectations of the legislature, in prosecuting the public works during the season, as required by the provisions of the act of the 22d of April last.

On the fifth of July, the president of the board received a communication from Messrs. Blythe and Mahon, members of the board of internal improvement, informing him that the board had no funds at their disposal, for canal and rail road purposes, and that demands to a considerable amount had been presented by the acting canal commissioners and superintendents, which had not been met, for want of funds. In pursuance of this information, the president convened the board of canal commissioners on the 23d of July. As temporary loans had been obtained to meet the demands upon the treasury, prior to the meeting, and as the board then had reason to believe that no material embarrasment in the prosecution of the public works would be experienced, whilst any portion of the sum appropriated for that purpose remained unexpended, they urged the several acting commissioners and superintendents to employ such force, and apply such funds as would secure the most exposed portions of the public works, and bring early into operation the divisions of canal which were nearly completed.

At the meeting in October, it was found that the funds appropriated for canal and rail road purposes, had for some time, been insufficient to meet the sums due monthly by the commonwealth, to contractors, and that the acting commissioners and superintendents were under the necessity of granting certificates to such contractors, as evidence of the amount due to them respectively.—At this trying period, the board anxiously solicitous to preserve the public works, to save the meritorious contractors from inevitable ruin, and to promote the best interests of the commonwealth, recommended to the respective acting commissioners and superintendents, to prosecute the works upon their respective lines, without remission, and to continue until the meeting of the legislature, on the first Tuesday in December, to make the usual monthly estimates, and to give to each contractor, or person entitled to receive payment, a certificate of the amount due such person. The certificates, a form of which was prescribed, to be signed by the acting commissioners and superintendents, and countersigned by the clerks upon the respective divisions. These measures had a tendency to lessen the evil consequent upon a deficiency of funds, and have enabled the board to continue the prosecution of the public works, up to the present period, without any material remission. For the redemption of these certificates, at the earliest possible moment. the most confident reliance is placed upon the justice of the legislature, in providing the requisite means; and as no acting commissioner or superintendent, can, under the existing laws, draw from the treasury more than 50,000 dollars at any one time, it is respectfully submitted. whether the interests of all concerned, will not require additional facilities for the prompt redemption of such certificates, upon the different divisions, whenever the necessary funds shall be provided.

As some of the divisions of the canal were so situated as to require immediate funds for the preservation of the works, and for guarding against the disastrous consequences of the frost and floods of the approaching season, and as there was reason to believe that sums adequate to the emergency, might be obtained from monied institutions or individuals friendly to the internal improvement of the state, on condition, that the same should be expended upon divisions designated, the constituted authorities were requested by the board to negociate such loans, to a limited amount.—The Governor accordingly obtained the sum of 106,000 dollars, which was distributed as has been stated in another part of this report.

The portage rail road across the Allegheny mountain, was included by the board, in the superintendency of the western division, and Moncure Robinson, who had been appointed the engineer in December last, was continued by the present board, for the purpose of completing his examinations and estimates upon this important public work. His report is herewith submitted. It will be seen that Mr. Robinson proposes passing the summit by a tunnel of one mile in length, and overcoming the elevation, by five lifts, and five levels on each side. The portage, according to his location, is 38 miles and 51 poles in length, and its complete execution upon his plan, is estimated at $936,004 87.

The best means of effecting this connection between the eastern and western waters, is a subject of great magnitude; for, independently of other considerations, upon it depends the successful competition of the Pennsylvania canal with other avenues, for the trade of the western states to the Atlantic. The board in employing Mr. Robinson upon this work, secured the services of an engineer of the first order. They required from him every kind of information necessary to a judicious selection of the best means of effecting the connexion. His report justifies the high opinion which was entertained of his talents and professional skill, and gives clear and comprehensive views of the subject.

At the meeting of the board in July, Major D. B. Douglas, who is known in this commonwealth as a highly respectable engineer, was appointed to make the surveys and estimates at the eastern termination of the Pennsylvania rail-road, required by a resolution of the legislature of the the 20th April last. His report and estimates upon the various routes, accompany this report. From all the facts laid before the board, they are of the opinion, that it is not the interest of the state now to construct more than one line of rail road from the inclined plane, near the farm of the late Judge Peters, and they recommend the extension of the line from that point down the western side of the river Schuilkill, to a point near Fairmount, thence across the said river and down its eastern side to sloop navigation, between Market and Chesnut streets, the road to be continued on the line and levels surveyed by Major Douglas, and projected in his report.

The canal commissioners were authorised, if they should deem it expedient, by a resolution of the legislature, adopted on the 23d of April last, to construct a road adjoining the 88th and 89th sections of the Pennsylvania canal, in Hemlock township, Columbia county; provided the cost should not exceed five hundred dollars, and provided that no part of the said sum should be expended until the citizens of the said county, should give satisfactory security for the completion of the said road, through section 87 and part of section 86.

In pursuance of this resolution, the board directed the engineer upon the North Branch division, to make an estimate of the cost of the road adjoining the 88th and 89th sections. The estimate was made, and amounted to $5,526; a proposition however was received by the acting commissioners from a contractor, for making the road for the sum of $4850. As neither came within the limits prescribed in the resolution, the board took no further order on the subject.

By the 2d section of the act of the 16th of April, 1829, relative to the appointment of canal commissioners, the board is required to appoint an engineer in-chief of the commonwealth and superintendent of the surveys.

This important duty engaged the early attention of the board, at their first meeting. The difficulty of making a judicious selection at this period of the progress of the public works, and the dangerous consequences of making an injudicious one, are obvious. In addition to the great experience and professional skill for which this officer should be distinguished, he must have the faculty of drawing to himself powers which have been hitherto exercised by the principal engineers upon the respective divisions, without disturbing the harmony of the system; of making an innovation upon settled rules, without producing confusion.

For the purpose of obtaining the necesary information in ordert o proceed to a choice, the board directed the president to communicate upon the subject, with such persons as he might deem proper, and report the result of his correspondence. Two reports have been made by the president, in pursuance of this direction, but the information received has not yet enabled the board to make a selection.

By the second section of the act of the 22d April, 1829, it is made the duty of the canal commissioners to locate the route of a suitable navigation, either by canal, or by canal and slack water, between the city of Pittsburg, or the mouth of Kiskaminetas, and the borough of Erie, within the present year. With a view to this location, the board, at their meeting in June, directed James Ferguson and Moncure Robinson, two of the principal engineers in the employment of the board, to explore and select the best summit, for a connexion of the waters of the Conneaut lake and those of lake Erie. Owing to the engagements of Mr. Robinson, upon the rail-road across the Allegheny mountain, he was afterwards excused from the performance of this duty; and the explorations were made by Mr. Ferguson, who made report to the board in October. At the same time, petitions were presented from a very respectable number of citizens, residing in the counties bordering on the waters of the Allegheny river and French creek, stating that the questions arising out of the conflicting claims of the Allegheny and French creek, and Beaver and Shenango routes, involved important interests, as well as the constitutional rights of the petitioners, should a location be made by which the waters of French creek would be diverted from their natural course. They prayed for the postponement of the location until after the next meeting of the legislature, for the purpose of having an opportunity to ascertain important facts, necessary to insure a decision in favor of the Allegheny and French creek route. The board, upon considering the subject, directed a committee to examine all the documents in relation to the subject, and to report their views of the most eligible route, at the meeting in December.

This course was deemed the best, as a decision upon the subject might still be made within the period limited by the said act of assembly. At the present meeting of the board, the committee made their report, in which a decided preference is given to the route from Pittsburg by the Beaver, Shenango, Conneaut lake, Elk and Walnut creeks, to Erie, to any other which has yet been examined. In this opinion of the committee, the board concurred; but as a location could not be made without the consent of an engineer, and the approbation of the Governor; as no engineer in the employment of the state had charge of this line, and as the board did not possess the information necessary to a precise location, by a definite line, they could proceed no further, from the information in their possession, than merely to designate the route to be preferred. The employment of an engineer, and his necessary assistants, to make such examinations as would enable the board to make a definite location, would have been attended with considerable expense, which it was thought not prudent or expedient to incur, whilst the funds appropriated by the legislature were found to be entirely inadequate to meet the demands of other and more urgent objects. When provision shall have been made for the commencement of this improvement, the precise location of the line will occasion very little delay.

Signed by order of the board.

DAVID SCOTT, *President.*

Attest—Francis R. Shunk, *Sec'ry.*

Canal Commissioners' Office,
Harrisburg, December 18, 1829.

List of documents accompanying the report of the canal commissioners, December 18, 1829.

Documents relating to Western division.

No. 1. Report of James S. Stevenson, acting commissioner.

2. Report of Sylvester Welsh, principal engineer.

3. Abstract of labor and disbursements, upon the Pittsburg and Pine creek line, from the 1st June till the 20th November last.

4. Abstract of labor and disbursements upon the Allegheny line, from the 1st. June till the 20th November last.

5. Abstract of labor and disbursements upon the Kiskiminitas line, from the 1st June till the 20th November last.

6. Abstract of disbursements upon the Kiskiminitas and Conemaugh line, from the 1st June till the 20th November last.

7. Tabular statement of labor done, monies paid, amounts due, and estimates of work, upon the Ligonier line.

No. 8. Abstracts of payments to engineers upon the Western division, from the 1st June to the 20th November last.
9. Schedule of damages paid, and miscellaneous payments, from the 1st June to the 20th November, 1829.
10. Recapitulation of payments, &c.
11. Schedule of names of persons employed as engineers, &c.
12. Schedule of contracts made upon the Pittsburg and Pine creek line, from the 1st November, 1828, till 15th November, 1829.
13. Schedule of contracts made upon the Allegheny line, form the 1st November, 1828, till the 15th November, 1829.
14. Schedule of contracts made upon the Kiskiminitas line, from the 1st November, 1828, till the 15th November, 1829.
15. Schedule of contracts made upon the Kiskiminitas and Conemaugh line, from the 1st November, 1828, till the 15th November, 1829.
16. Schedule of contracts made upon the Ligonier line, from the 10th November, 1828, till the 15th November, 1829.
17. Comparative statement of the amount and value of work originally estimated to be required, on 21 sections of the Ligonier line, the amount and value of what is done on the same, &c.
18. Documents relating to the Grant's Hill tunnel contract, &c.

Documents relating to Juniata division.

1. Report of James Clarke, acting commissioner.
2. Report of Alexander C. Twining, principal engineer.
3. Report of William B. Mitchell, supervisor Juniata division, from Lewistown to Duncan's island.
4. Report of Alexander C. Twining, principal engineer, upon the situation of the Juniata aqueduct at Duncan's island.
5. Statement of amount paid to jobbing contractors and assistant supervisors.
6. Statement of damages paid, and agreements relative to damages.
7. Statement of work re-let.
8. Estimates on the Lower line.
9. Estimates of incidental work

No. 10. List of engineers, &c. since 1st December, 1828, and their compensation.

11. Engineer corps, supervisor, collector and lock keepers.

12. Summary view of cost incurred, and estimated.

Documents relating to Eastern division.

1. Report of John Forrey, acting commissioner.
2. Report of Edward F. Gay, principal engineer.
3. Statement of work done during the last year, between Duncan's island and the mouth of Swatara.
4. Statement of work done since the 1st May, below Middletown.
5. List of contracts made from the 3d November, 1828, to the 1st June, 1829.
6. List of contracts made since the 10th June.
7. List of engineers and other agents employed since the 10th June.
8. Damages paid, and agreed to be paid, during the last year.
9. Expenses paid since the 10th June, 1829.
10. Statement of certificates issued.

Documents relating to Susquehanna and West Branch divisions.

1. Report of John Ryon, superintendent.
2. Statement of work done, and payments made, &c. on the Susquehanna division:
3. Statement of work done, and payments made, &c. on the West Branch division.
4. List of superintendents, engineers, &c. employed upon the Susquehanna and West Branch division.
5. Report of the principal engineer, of work to be done upon the Susquehanna and West Branch division.

Documents relating to the Delaware division.

1. Report of Thomas G. Kenedy, superintendent.
2. List of contracts, &c. and amount paid, and retained.
3. List of contracts, &c. for mechanical work.
4. List of engineers, &c. employed.
5. Damages paid.
6. Statement of Receipts and Expenditures.
7. Estimated cost of work, to be done upon the division.

Documents relating to the North Branch division.

No. 1. Report of John Mitchell, acting commissioner.
2. Statement of work done, the cost at contract prices, and the amount paid.
3. List of engineers and other agents empoyed, and also the amount of damages paid, and agreed to be paid.
4. List of contracts made during the last year.
5. Estimate of work to be done.
6. Documents in relation to the Nanticoke dam.

Documents relating to the French Creek feeder.

1. Report of William Dickson, superintendent.
2. Statement of work done, and amount paid, and due.
3. Statement of work done, and amount paid on the aqueduct.
4. Statement of amount paid and due, on special contracts.
5. Statement in relation to damages.
6. Statement of contracts, since 15th November, 1828.

Documents relating to the Pennsylvania rail-way.

1. Report of John Barber, superintendent.
2. List of contracts made.
3. List of contracts for mechanical work, and fencing.
4. List of engineers, and statement of damages paid.
5. Estimate by the principal engineer, of probable cost of unfinished work upon the 40 miles of road formation.

Documents relating to the Allegheny portage.

1. Report of Moncure Robinson, principal engineer.
2. Estimate cost of constructing the portage rail-road.

Documents relating to the eastern termination of the Pennsylvania rail-way.

1. Report and estimates of major D. B. Douglass.
2. Report of Charles Roberts, on damages.
3. Releases of damages.

Report of a system of rules and regulations, for the navigation of the canal, and the collection of toll.

Journal of the board of canal commissioners.

No. 1.

WESTERN DIVISION.

REPORT OF MR. STEVENSON.

To the Board of Canal Commissioners of the Commonwealth of Pennsylvania.

GENTLEMEN:

The acting commissioner of the western division of the Pennsylvania canal, in making the statements to enable the board to lay before the legislature the annual information required by law, deems it proper to remark:

That when the legislature took to themselves the direct appointment of members of the board, he found himself constituted one of the number. The appointing power was too honorable, and the interests confided were too material to justify any citizen in refusing his services; and although much personal inconvenience and sacrifice at the time, had to be met, yet in the hope to aid in enforcing necessary and useful measures, and in economising the means of the almost exhausted state, he accepted the trust.

The desire expressed by the members of the new board, on convening at Harrisburg, that he should take charge as acting commissioner of the western division, extending from Frankstown on the Juniata, to Pittsburg, a distance by the proposed rail road and canal, of one hundred and forty-six miles, presented much difficulty. He had been strongly urged by western friends and citizens, to consent to act if proposed, and having agreed to become one of the board of commissioners, he in common with each member, seemed bound to aid the views of the board in any manner in his power, to secure the interests confided to their general care. He was aware, that in the event of acceptance, whatever of humble reputation he possessed, must be hazarded on the success of his course, and had every reason to believe, that to be successful he must make changes of men and measures, which by effecting individual interests, would probably create lasting enmities. He was also to expect that feelings of political resentment towards the legislature, for making the general change in the board, would in his quarter be transferred to its agent, and that attempts would be made to embarrass and obstruct him in his duties. The situation of acting commissioner was therefore not desirable, but the task was undertaken.

Operations were carrying on through a line of canal, one hundred and five miles in extent, and a survey making for the rail road located over the Allegheny mountain. About twenty-five hundred men were in employ on the division, principally in the Ligonier line. The accounts were numerous, and delay on payments, would prove destructive of the credit and interests of the contractors, and distressing and irritating to the labourers. The necessity of prompt measures was obvious, and having given the required security of fifty thousand dollars, for the faithful performance of his duties, the acting commissioner, by letter dated the 11th day of June, respectfully requested of his predecessor, then at Harrisburg, that the books and papers of the division should be delivered (within seven days,) as provided by law, and as authorised by a resolution of the board. The fixing a day for their delivery, was declined. About the 25th of June, the commissioner sent to the late canal office, but on examining it, no books or useful papers were to be found. On the 27th of June, a letter was addressed to the Governor on the subject of the detention, hoping that from his obligation to watch over the general interests of the state, and being in possession of the bond of surety given by the late acting commissioner, his influence would be exerted to cause their delivery, or to supply their deficiency as far as practicable by abstracts, &c. from the Auditor General's office, of payments, &c. This letter remains unanswered. On the first of July, finding it impossible to possess myself of books or other official documents, and that further delay of payments would be insupportably distressing, it was determined to make payments on the Ligonier line, at all hazards of personal loss, though possessed of no other guide than a loose sheet procured when at Harrisburg, from the Auditor's office, unofficially stating what payments on the Ligonier line had been admitted to the credit of my predecessor. The commissioner was met in a spirit of kindness and honor, by the contractors at Blairsville. They knew that he was not possessed of their receipts and accounts, and yet it has since been found that not one man attempted to deceive, as to the amount previously paid him.

On the 14th of July, I received from my predecessor (Mr. Lacock,) a note stating that the books, papers, accounts, &c. belonging to the division would be delivered at Spring Dale. On the 17th, I accordingly sent Mr. Jones, clerk, and Mr. Lecky, supervisor, to receive them. They returned with a number of blank forms, and other unimportant papers, but neither cash books, receipts or other useful papers, except the contracts, were received. A day book, journal and two legers were delivered but on inspection it will be found that no entry whatever had been made in either of these since the 18th of September, 1828, ten months preceding their delivery, and even the entries made, are so entirely unintelligible, that it is impossible to obtain any useful information from them as to the accounts of the division. These books duly certified by the clerk and supervisor, to be the books and only books of account they received, are now delivered to the Secretary, for the inspection of the members of the board, that all misconstruction or doubt may be avoided.

It will be recollected, that on the 25th of July, the following resolutions were adopted by the board.

"*Resolved*, That the Auditor General of the Commonwealth be requested to allow the acting commissioner of the Western Division of the Pennsylvania canal, to cause copies to be taken from the Auditor's office of any contracts, estimates, accounts, payments, receipts, vouchers, settlements or other papers relating to that division, which the present acting commissioner may deem necessary, to his information in the discharge of his public duties, and to enable him as far as possible, to remedy the evils arising from the deficiencies in the papers of that division, and especially from the neglect of the books, in which no entries whatever have been made from the 17th of September, 1828, to the period of their delivery on the 17th July, 1829."

"*Resolved,* That James S. Stevenson, the present acting commissioner, be allowed to employ a suitable person to take under the inspection of the Auditor General, such copies as may be deemed necessary under the preceding resolution, and that he be authorised to make such person a reasonable compensation for his services."

The Auditor General was informed of the adoption of these resolutions, and it was proposed to employ a clerk to copy such duplicates and papers in his office, relating to the western division, as were deemed by me essential in the prosecution and settlements of the concerns of the commonwealth. The Auditor objected, that he could not allow any other than clerks of his own to handle the papers, as they would be liable to be soiled or injured, and he had given security for their safe delivery to his successor. I then proposed he should employ any person he pleased, and I would, if required, pay the expense; this, was declined; and throughout the season, I have had the greatest difficulty to encounter, as regards the settlement of accounts, and every hazard of loss. Some papers were obtained from the Auditor General, but the delay and limited compliance with my requests, occasioned almost insurmountable evils. Under such circumstances, almost every unsettled account on the old lines had to be examined by such tests as I could devise. The difficulties however, have been overcome, and with much less dissatisfaction than I anticipated, from those whose claims I was compelled to examine with scrupulous care and some delay. In one instance only, out of the very numerous unsettled old accounts, have I been deceived. In that I paid four hundred dollars which had been previously paid.

Whether a set of regular books were kept and retained by my predecessor, shewing the expenditure by him of nearly two millions of dollars, I know not. If there were, it seems most extraordinary that they should be withheld. The books are the records of the division, and the property of the state.

On the 14th of June, I personally informed Mr. J. D. Harris, that the board had not continued him as an engineer, and by letter of the 17th of the same month, to one of the principal assistants, directed him to receive from Mr. Harris, late engineer, such books, papers, notes, instruments, &c. belonging to the western division of the Pennsylvania canal, as were in his possession or that of his assistants. Mr. Harris seemed to think his non-election by the board, of which he had been apprized before he was informed by me, and my own verbal notice not sufficient, and alleged that the letter of the 17th had not been shewn to him until the 20th of June. I accordingly paid him to this latter day, and took his receipt in full. He has since preferred a claim for the continuance of his salary, to a later period, but as acting commissioner, I know no services he has rendered that can entitle him to further pay.

The first section of the act of the legislature, approved 10th of April, 1828, requires that each engineer, assistant engineers, superintendents, target men, clerks, &c. shall take an oath or affirmation, before some alderman or justice of the peace, to perform the respective duties of their office with fidelity and impartiality.

On my reaching the division, I found to my surprize, that in no instance, as far as I could learn, had any one of the engineers or assistants taken this oath, though estimates to the amount of upwards of a million of dollars had been taken by them, subsequent to the passage of the law. I therefore directed an immediate compliance, and the oaths were generally taken about the 1st of July by the engineers appointed or continued in service. On the 22d of August, I received a letter from the Auditor General, directing a compliance with this law; a copy of the reply made on the same day, will be furnished the board if required.

On the commencement of my duties, I found a number of persons uselessly employed, and at a great expense to the state, in digging down hills in the vicinity of the canal, on the older lines, under the pretext of removing hill slips. This was immediately terminated, and there has not been a necessity for removing one cubic yard of slip bank from the first of July to the present period. The payments made by me for slips, were for work done before my time. A great number of persons were also in employ under contracts for making repairs; These were promptly reduced. The principal part of the payments made by me under this head, were for claims prior to the first of July last.

In the course of the summer a correct survey of the canal from Pittsburgh to Blairsville has been made, giving its bearings and the distances and positions of all structures and places of any note on the canal. The mile points have been noted and marked, so that tolls may be correctly calculated. A map is preparing, giving a full view of the line.

The survey of the Allegheny mountain, with a view to a rail road, has been completed, and from the activity, fidelity and science, which appear to be eminently united in the engineer by whom it was made, (Mr. Moncure Robinson,) a clear and comprehensive report, will no doubt be presented by him to the board.

The regular navigation of the canal, from Blairsville to a point opposite Pittsburgh, a distance of seventy-three miles, was established on the 21st of August, from which time the collectors were directed to commence the receipt of toll at Pittsburgh and Blairsville. The collector at Leechburg, had for some time previous been receiving toll for the navigation at the dam at that place, and a few miles of canal near the same. As the returns of toll collected, are by law made to the treasurer of the commonwealth, the receipts can be obtained from him.

It is a part of the duty of the acting commissioner to speak of the work on the western division of the canal as it exists. Many of the members of the board will recollect, that the first act of the legislature, dated the 25th February, 1826, making appropriations for the commencement of the canal, directed the then commissioners to "locate and contract for making a canal from Pittsburgh to the mouth of the Kiskiminitas." These points being both on the east side of the Allegheny river, no other than a location on that side seemed even thought of. It was the obvious intention of the legislature, and a departure from this seemed alike a violation of law and of common sense. The Allegheny, a wide and bold stream, often swelling to an irresistible torrent, totally forbid the placing of piers so closely as to admit of crossing by an aqueduct of stone, and common prudence, debarred the great meditated communication from the waters of the west to our eastern commercial metropolis, from being subjected to any avoidable hazards of interruption. One broken link dissevers the chain. The failure of one aqueduct disconnects the whole line of trade. Were the legislature to direct the present board to cause a canal to be made from the mouth of the Swatara to Harrisburg, would it not be deemed grossly absurd, and a wanton defiance of law and of sense, were the board in order to effect this, to erect a wooden aqueduct across the Susquehanna, construct the canal on the western shore of that river, and re-cross by another wooden aqueduct to Harrisburg; would not the distance be increased, the expense be greatly enlarged, the repair and hazard of interruption be far greater than if the canal were made directly from point to point, on the eastern side. Yet this case as cited, would be precisely similar to that which has occurred in the location of the canal on the Allegheny river, between Pittsburgh and the Kiskiminitas; and the comparison is made with a region of country you have all seen, so that the errors of an actual location may be more obvious in a region which most of you have not seen. As to the reported difficulties of constructing a canal on the east side of the Allegheny, it is manifest they lay only in the bosom of the engineer, or in the bosoms of those who governed him.

In the report of Mr. N. S. Roberts, engineer, making a comparative statement of the cost of a canal on the respective sides of the Allegheny river to the boundary line of Pittsburgh, he estimates the cost on the east side at six hundred and twenty-eight thousand eight hundred and fifty dollars; that on the west side as finally located, exclusive of the two aqueducts, over the Allegheny,

	$266,029 00
Aqueduct at Kiskiminitas,	72,000 00
Ditto at Pittsburgh,	100,000 00
	$438,029 00

At the time this appeared, it was alledged that he had intentionally over estimated the cost on the east side, and underrated that on the west, with a view to bear upon the decision of the board. We know not what his views were, but we do know, that the actual cost on the west side, independent of the two aqueducts, has been $614,000 and including these $805,000, being an excess over the original estimate of $367,029 00.

The location of the canal on the west side of the Allegheny river, was in fact, altogether unfortunate, as the waters of the Kiskiminitas has necessarily to cross that river twice by aqueducts of wood, and if the trade from the waters of the west to the seaboard, takes its course through the Pennsylvania canal, the interruptions which will undoubtedly occur, must finally force a location on the eastern side of the Allegheny, from Pittsburgh to the Kiskiminitas. Should this prove necessary, it is ascertained that a canal can be contracted for, to be made perfectly secure against all accidents, and durable in all its parts, for four hundred and fifty thousand dollars, or fifteen thousand dollars per mile. That as now located cost about twenty-seven thousand dollars per mile, including the necessary aqueducts.

The location of the canal from the Kiskiminitas to Pittsburgh, and the general design of the necessary works, was made by Nathan S. Roberts, engineer, and executed under his superintendance, and that of James D. Harris. The wooden aqueduct over the Allegheny at the mouth of the Kiskiminitas, was designed to bear four feet of water; it has been found too light in its frame, as part of its bearing timbers broke with the weight of three feet five inches of water, when tried in July last. On being repaired I directed several openings to be made, by removing plank from the side of the trunk three feet above bottom, so as to secure it against a heavy head of water. In May last, one of the stone abutments of the costly aqueduct over Buffaloe creek fell, on the water being let upon it; this has been rebuilt. The aqueduct over Pine creek, which cost the state about twenty five thousand dollars, has proved extremely bad both as to scite and structure; with great difficulty, the stone work and trunk has been kept from falling until the 27th of last month, when one abutment entirely gave way, and interrupted the navigation below. A temporary communication however, by an extension of the trunk of the aqueduct on timbers, was re-established on the 5th instant, for the season. The building of a permanent aqueduct on a better scite or plan is absolutely necessary.

On the old lines several of the locks will have to be rebuilt next season, owing in part to bad workmanship, but especially to the use of a bad material forced on the contractors, under the name of hydraulic lime, at a great expense and loss to the state.

The wooden aqueduct over the Allegheny at Pittsburgh, has been erected at the expense of about $110,000. The progress made in its erection, when I took charge of the line, forbade any alterations in the plan. The span of the arches from centre to centre, is one hundred and sixty-one feet, and one hundred and fifty-two feet from pier to pier; its bottom is thirty-five feet above low water mark; its whole length from abutment to abutment, eleven hundred and twenty-three feet. Each pier contains about nine hundred and fifty perches of stone, of 25 cubic feet. The piers are 17 feet wide by 50 feet long, at foundation; the ends are semi-circular; the range of the piers instead of being in the thread of the stream, make an angle with the current of twenty degrees. This oblique arrangement of the piers on a foundation of gravel, and in a river having a fall of nearly three feet to a mile, sometimes rising twenty-five feet above low water mark, and often filled with drift wood and ice. is unaccountable on any supposition that the structure was meant to endure. The position of the piers is such, that although they are but seventeen feet in width, they form an obstruction in the river equal to piers of thirty-four feet ten inches wide, if placed in the thread of the stream, and this necessarily occasions an increased velocity of the current, and increases the power of the stream in excavating between the piers. To prevent excavations affecting the foundations of the piers, a quantity of large stone and gravel has been placed around them. As to the construction of the aqueduct, the contractors have furnished good materials, and as far as I can judge, have executed the mechanical work according to the specifications of their contract; the bearing timbers of the trunk however, are too weak, and are to be supported by additional pieces. The water was admitted across this aqueduct to Pittsburgh, on the 10th November.

The whole season has been one of experiment, as regards that part of the canal into which the water has been admitted, and unceasing activity and vigilance has been required to repair and prevent breaches, and to secure and strengthen the works, and provide against the evils of its original construction. Those in charge of the line as lock keepers, have been trained to service, and are now disciplined. It is hoped the ensuing year may relieve the state from any heavy expenditure beyond the income.

The Table No. 1. will shew the amount of the original estimates on the several lines, payments made, &c. The estimates on the west side of the Allegheny, together with the two aqueducts over that river, were made by N. S. Roberts, engineer. The aggregate amount of these, was $438,029 50. The amount paid and yet to be paid being $818,433 16, making an excess of $380,403 66 over the original estimate. The estimate on the Ligonier line was made by James D. Harris, engineer, and amounted to $500,413 30. The payments made and value of work yet to be done on the same, is $689,617 16 being $189,202 86 over the original estimate. This excess is the more remarkable, as the calculations were made after most of the work was let, and the prices established. The errors therefore are principally in the estimate of the quantity and kinds of excavation; and these errors are great.

TABLE No. 1.—*Shewing the amount of payments on the western division Pennsylvania canal, by the former and present acting commissioner, together with the probable amounts required to finish the same; the total cost; original estimates, &c.*

Lines composing the west. div. Penna. canal & amounts paid on same, by A. Lacock, late acting commissioner.		Am't paid on same by J. S. Stevenson, acting com'r.	Probable am'ts required to pay unsettled act's and to complete the whole.	Total cost.	Original estimates.	REMARKS.
Allegheny line, 24 miles,	389,916 82	10,903 57	5000 00	405,820 39	210,622 14	See report of Sep. 6, 1826.
Pine Creek do 5 do	142,493 67	9 046 94	6000 00	219,112 77	55,407 86	
Branch to Allegheny town, ⅜ of a mile,	61,572 16					
Aqueduct over Allegheny at Kiskiminitas,	81,500 00			81,500 00	72,000 00	
Aqueduct to re cross Allegheny at Pittsburg,	70,000 00	15,000 00	27,000 00	112,000 00	100,000 00	
Pittsburg part of Pine Creek line,	48,214 54	8,090 80	20,000 00	76,305 34	85,767 40	
Kisk. & Kisk. & Conemaugh lines, 44 miles,	860,936 62	78,380 14	20,000 00	959,316 76		
Ligonier line,	71,834 25	229,764 74	388,018 17	689,617 16	500,413 80	In this sum $47,884 99 the am't estimated to be required by J. D. Harris, to make that part of the Lig. line between sec. No 57 & — at Johnstown upon which no work has yet been done.
Supposed am't of salaries and expenses of engineer department, damages & miscellaneous	95,490 56	11,687 73		107,178 29		
	$1,821,958 62	362,873 92	466,018 17	2,650,850 71		

The table No. 2. shews the original estimate of quantity and value in twenty-one sections of the Ligonier line, upon which the greatest labor has been done. In the original estimate, the aggregate quantity of rock to be removed from these sections, is stated by James D. Harris to be 31,368 yards; yet in June last, the estimate taken under his direction, gives as actually removed at that time 121,140 yards of rock. In November, Mr. Welsh, engineer, gives 158,171 yards of rock as removed, and now estimates that when completed the whole rock excavation from the sections, will be 187,868 yards, six times the quantity originally reported to the board.

The act of April 1827, requires that when there is a material deviation between original estimates, and the subsequent cost of the work so estimated, the name of the engineer making the original estimate shall be stated, and the causes of such difference. I have given the names of the engineers, but as to the causes of the difference, if negligence in the examination, incapacity to estimate or a disposition to mislead, does not embrace them, I am ignorant of what does.

The canal from the mouth of the Kiskiminitas to Blairsville, was constructed under Alonzo Livermore, engineer, and the work has required less repair than that on the Allegheny. Some interruptions have ensued from the falling of stone from the central part of the roof of the tunnel, but this will cease ere long, as the roof is gradually acquiring the form of a gothic arch, when this is effected the falling will terminate.

The line of canal from Blairsville to Johnstown, may easily be rendered navigable by the middle of August next, and although there are expensive and irremediable errors in the original plan, yet from the experience, care and science of Mr. Sylvester Welsh, the present engineer, I am confident that this will be found when completed, a superior line of canal. The report of Mr. Welsh, No. 2, is herewith communicated

Mr. Welsh having been elected an engineer by the board, without any consultation with him, was, owing to his existing engagements, unable to join the division until August, when he made it a short visit, and gave such advice as seemed most necessary. He could not however give his entire service until September. Since that time his attention has been engrossed by his duties on the new line; I have had however, the benefit of an occasional visit and advice on the old lines, and can speak with pleasure, of his judgment and desire to use every degree of economy, consistent with the safety and permanency of the public works committed to his charge.

When the Ligonier line is completed, there will be a navigation by canal, on the western division, of one hundred and four measured miles, from the out-let lock into the Monongahela at Pittsburgh, to the basin at Johnstown. The canal cannot however be productive to the state, until the connexion is formed with the Juniata division, by a turnpike or rail road so as to render it the channel of the carrying trade from the seaboard to the waters of the west and vice versa.

In the general arrangement and organization of the division, I have avoided all dismissals and changes, but such as followed from the completion of lines or seemed requisite to establish the necessary activity, capacity and economy amongst the agents of the state. I can speak with confidence, of the general value of those now employed upon the division.

Much difficulty has resulted from not obtaining funds from the state to meet the demands. The whole amount of cash received from the treasury by me, since my duties commenced, has been but two hundred and fourteen thousand, three hundred and five dollars and ninety-nine cents. The certificates issued by the direction of the board, would have been sold at great loss, had I not been so fortunate as to effect an arrangement with the bank of Pittsburgh, and the office of discount and deposit at Pittsburgh, by which they agreed to receive certificates issued to contractors, in October, to the amount of $70,000 00, at one per cent. deduction. The contractors having joyously acceded to this, the amount was paid by my direction to the original holders only, so as to prevent speculation on the necessitous. By the withdrawal of this amount from the market, it also prevented the general depreciation and distress, which must have otherwise issued.

These banks finally received about $100,000 00. The balance is principally in hands, which are better able to hold them. It is essential however, that means should be promptly provided, as there are demands which justice requires should be immediately met.

The papers marked A B C and D will shew the proceedings of the acting commissioner, under the resolution of June 9th, 1829, relating to the contract for the tunnel, &c. in the city of Pittsburgh. It will be seen by these papers that this contract was abandoned, under the resolution of the board, by M'Avey and company, the original contractors ; that it was tendered to the authorities of the city of Pittsburgh and declined by them, and that upon their so declining, a conditional guarantee was obtained by the commissioner, from them, as to the final cost. The principal part of the work has since been relet to Messrs. Welsh and Bartley's. It is believed, that with due economy, the work can be completed for the original sum, set apart by the former board of commissioners, and it is anticipated that from the progress of the work, boats will be enabled to pass into the Monongahela, by the opening of the navigation in the spring. The report of Mr. Welsh, principal engineer on the division, as regards the work done by M'Avey, and Co. is also submitted. See paper marked E.

The city authorities and citizens of Pittsburgh, object to the conditions imposed upon them by the old board of canal commissioners. They claim, that the original law directed the canal to be so located as to make Pittsburgh a point. That as citizens of the commonwealth, they contribute their share to the general expense, and that a special amercement by the commissioners is unwarranted by law, and has no parallel in the acts of the board; that whilst immense expenditures have been made elsewhere on unimportant points, it is unjust to specially assess them who contribute so largely towards expenditures in other quarters. The city authorities at once agreed however, to submit the question of their liability to the arbitrement of the legislature, and the acting commissioner could not object to this reference, and made the conditions of the guarantee accordingly.

Not being possessed of the accounts of the division previous to my assuming the duties of acting commissioner, it is impossible for me to furnish all the information which the resolutions of the board seemed to require, particularly the payments in detail, made by my predecessor, between November, 1828, and the 1st of June, 1829. Whatever of information is furnished by this report, as regards payments prior to my time, has been drawn from the best sources to which I could refer, principally from the Auditor General's office. It is believed, however, that the statements are generally, if not minutely, correct. The accompanying abstracts, schedules, and tabular statements numbered 1 to 8, and the schedules of contracts numbered 1 to 5, will furnish the detailed information required by the laws of the commonwealth and the resolutions of the board.

Respectfully submitted,
JAS. S. STEVENSON.
Acting Commissioner, W. D. Penna. Canal.

Canal Office, Pittsburg, December 9, 1829.

No. 2.

Report of Sylvester Welsh, Engineer, on the Western Division, Pennsylvania Canal.

To the board of Canal Commissioners of Pennsylvania.

GENTLEMEN:

In obedience to instructions received from James S. Stevenson, Esq. to make an estimate of the cost of that part of the Ligonier line, now under contract, and a statement of the condition of the work. I have the honor to submit the following report:

The location of this line of canal having been made, and the work considerably advanced previous to my appointment as the engineer, it became necessary to pursue in its construction, generally, the original plan.

In the passage of bluffs, the plan of location contemplated an excavation sufficiently broad at the base, for the canal and a part of its river bank, and a height on the hill side in proportion to the natural slopes, and varying from twenty to sixty feet. Where the bluffs are composed principally of clay and loam, mixed with gravel, with a substratum of rock whose surface inclines towards the river, this excavation leaves unsupported, a large mass of earth, which when moistened by rain, has a tendency to slide into the canal. In a few instances, where the slips were the most extensive, the canal has been moved towards the river, on the bed of which, its river bank will be placed, and will be supported at the bottom, by a terrace formed of stone. This change was made with a view to economy in construction, and to avoid future inconvenience from the sliding earth. But the levels adopted in the location, are generally too much elevated above the river to admit of such alteration, and the slips when they occur, must be removed in such manner as circumstances may direct.

In the locks, some alterations have been made in the construction of the head and upper gates, and in the paddle gates. In the original plan, a breast of masonry was raised to within one foot of the upper level, upon this a stone mitre sill one foot in depth, was placed, against which the gates closed. The locks were to be filled through culverts formed in the side walls; the valve gates were to be of wood. Locks built in this manner, require from six to ten minutes for the passage of a boat, where the lifts average eight feet. The walls require an additional thickness and a consequent increase of expense, the formation of the culverts is difficult, and their situation renders it impossible to repair any injury that may occur from the violent concussion of the water on opening the valves, or from other cause, without removing a portion of the lock wall. In the plan now adopted, a wall five feet thick and equal in height to the lift, connects the side walls at the head of the lock; a breast of timber is raised one foot above the bottom, upon this a mitre sill of wood, against which the gates close, is strongly bolted; a pit, one foot in depth and between five and six feet wide, receives the stone, gravel, &c. that may be carried over the head wall. In each of the upper gates, and below the surface of water in the lower level, two cast iron paddle gates, each two feet square are inserted, and two similar paddle gates in each of the lower gates, making eight for the lock. The time required to fill a lock of eight feet lift or to discharge the water, will be about a minute and a half, and the time required for the passage of a boat, including all necessary detention, from three and a half to four minutes.

This plan of constructing the head and breast of a lock, was first introduced by Canvass White, Esq. on the Union Canal of Pennsylvania, and has subsequently been adopted with success on other canals. The locks on the Union canal are eight and a half feet wide, and seventy-five feet long. They are filled through one paddle gate eighteen inches square in each lock gate. The time required is about two minutes for a lock of eight feet lift. The locks of the same construction in the Lehigh navigation, are twenty-two feet wide and one hundred feet long in the chamber. They are filled through two paddle gates, of twenty-six inches square, in each lock gate. The time required to fill the lock or discharge the water, is about two and a half minutes, and the average time including all necessary detention, of the passage of a boat, about five minutes.

Stone abutments are constructing at the dams where wood was intended to be used. The rapid decay of the latter material, when placed in that situation; the consequent jeopardy of the dam, and the suspension of navigation in case of failure, it is believed ought to exclude its use in all cases where stone can be obtained.

It is proposed to erect an aqueduct with two arches of eighteen feet each, over the Laurel run on section No. 57, in lieu of a culvert as formerly proposed.

The above are the only material changes that have been made that will effect the expense of the work. In the locks that were not commenced the cost will be diminished. The expense of those where considerable progress had been made in the work, will be increased only where the walls had been commenced at the head. The expense of the dams will be increased by the difference between the cost of stone abutments and those of wood; and the aqueduct at Laurel run will exceed the cost of the culvert as formerly proposed, about five thousand dollars. The whole will amount to about fourteen thousand dollars.

In the estimate, the bridges are supposed to have abutments of masonry on each bank, with a trussed superstructure, leaving the whole breadth of the canal unobstructed. The embankments, and all the excavation necessary for the foundations of abutments are included in the estimate.

The waste wiers are to be of timber and plank, with a foundation of masonry when necessary. The lock houses to be of wood, and similar to those already built on this division of the canal.

The following is the estimated cost of the work when completed:

Excavation, embankment, &c. of the sections,	$262,889 82
Locks, including embankments and excavation of pits,	154,419 77
Guard locks do. do.	26,425 25
Dams, including pier heads and abutments,	51,206 95
Aqueducts,	69,297 00
Culverts,	8,865 72
Bridges and roads,	14,378 20
Waste wiers,	5,400 00
Lock houses,	8,400 00
Fence,	4,125 00
	$605,407 71
Add for contingencies 6 per cent.	36,324 46
	641,732 17
Amount of labour done,	394,382 56
Remaining to be done,	$247,349 61

The estimate of James D. Harris, Esq. of the cost of that part of the line now under contract, as found in the printed reports, was $452,528 51; the difference between the former and the present estimate, $189,203 86. Not being in possession of the data from which calculations for former estimates were made, I cannot explain the causes of the difference. The remaining three and a third miles of canal, from section No. 57 to Johnstown, has not been fully examined, and of course not estimated, it not being under contract. The annexed schedule, numbered 5, will show the estimated cost of each item of the work, and the amount of labour done:

The canal from Blairsville to Johnstown, can, with ordinary exertion, be made navigable by the 15th of August, 1830, and earlier if it is deemed advisable, by urging forward the work. From the late period at which I was enabled to enter upon the duties of engineer of the western division, my attention has been almost exclusively given to the Ligonier line, where the most active operations were prosecuted, leaving but a small portion to be devoted to other parts of the division. I shall therefore refrain from making any remarks on the remainder of the division, until a minute examination shall warrant a more satisfactory report than I can make at present.

All which is respectfully submitted.

SYLVESTER WELSH, *Engineer*,

Ligonier Line, Western Division,
Pennsylvania Canal, Nov. 23, 1829.

No 18.

A.

Abandonment of contract by M'Avey & Co.

Whereas, by a resolution of the general assembly of the commonwealth of Pennsylvania, passed 23d of April 1829, it was resolved, "that the acting canal commissioner on the western division of the Pennsylvania canal, be authorised to pay to James M'Avey & Co. contractors on the canal and tunnel through the city of Pittsburg, for the full amount of labor done, and in case the contract shall be abandoned by the present contractors, the acting commissioner be authorised to give the contract to the constituted authorities of the city of Pittsburg, *&*c."

And whereas by a resolution of the board of canal commissioners, passed at a meeting of the said board, in Harrisburg, June 9, 1829, it was resolved, that as soon as M'Avey & Co. declare in writing, to the acting commissioner upon the western division of the Pennsylvania canal, the abandonment of their contract, the said acting commissioner shall cause a careful and accurate estimate to be made, by one of the principal engineers on the western division, and report the same to the board for their consideration and decision.

Now therefore, be it known, that we James M'Avey, Daniel Moloy, James M'Laughlin and James Slamon, composing the firm of M'Avey & Co. contractors for the canal and tunnel through the city of Pittsburg aforesaid, in compliance with the resolutions aforesaid, and in order to avail ourselves of the benefits and advantages that may arise therefrom, and in order to release and discharge the commonwealth of Pennsylvania from the contract entered into with us, we do hereby severally and jointly abandon, resign and deliver up to the acting canal commissioner on the western division of the Pennsylvania canal, our right and interest in the contract entered into by us with the said commonwealth of Pennsylvania, for the construction of the canal and tunnel through the city of Pittsburg, claiming at the same time, according to the resolution aforesaid, passed by the general assembly, and that of the board of canal commissioners.

In witness whereof, we have hereunto set our hands and seals this 18th June 1829.

JAMES M'AVEY, [L. S.]
JAMES SLAMON, [L. S.]
JAMES M'LAUGHLIN, [L. S.]
DANL. MOLOY, [L. S.]

Witness present,
S. JONES.

B.

Copy of a letter to the Select and Common Councils of the city of Pittsburg.

Pittsburg, June 20, 1829.

To the Select and Common Councils,
of the city of Pittsburg.

Having accepted the appointment, and entered upon the duties of acting canal commissioner upon the western division of the Pennsylvania canal, it becomes my duty to communicate with you on the subject of a resolution of the legislature of this commonwealth, approved the 23d of April, 1829, which is in the following words:

"Resolved by the Senate and House of Representatives of the commonwealth of Pennsylvania, in general assembly met, That the acting canal commissioner on the western division of the Pennsylvania canal, be and he is hereby authorised to pay to James M'Avey & Co. contractors on the canal and tunnel through the city of Pittsburg, for the full amount of labor done, and in case the contract shall be abandoned by the present contractors, the acting commissioner be and he is hereby authorised to give the contract to the constituted authorities of the city of Pittsburg, agreeably to the principles contained in the guarantee given to the board of canal commissioners by said city."

Having reference to this resolution, the contractors by an instrument of writing, filed in my office, and bearing date the 19th inst. have abandoned and given up their contract upon the canal and tunnel aforesaid. In consequence therefore of the said abandonment, I have thought it proper to inform you of the fact, and to tender to you, as the " constituted authorities of the city of Pittsburg, the contract, agreeably to the principles contained in the guarantee given to the board of canal commissioners by said city."

The early completion of the western division of the Pennsylvania canal, and its connexion with the city of Pittsburg, so distinguished for manufactures, commerce and influence, is of great interest to the commonwealth. It is therefore anticipated by me, that a prompt avowal of the intentions of her constituted authorities will be made, so that the acting commissioner may be possessed of information important to him in the prosecution of his several duties to the state.

Very respectfully,
Your obedient servant.

C.

Letter from James Ross, Esq. relative to Canal and Tunnel in Pittsburg.

Pittsburg, June 22, 1829.

Dear Sir—At a meeting of the select and common councils, held this day, your communication respecting the termitation of the Pennsylvania canal at Pittsburg, and the tunnel through Grant's hill, was read and referred to a joint committee of five, viz: two from the select, and three from the common council, to take into consideration all matters connected with this interesting subject; the committee will convene in the select council chamber, in the court house, to-morrow morning at 9 o'clock, where they would be happy that you may find it convenient to meet them, and confer freely and fully on this subject.

I have the honor to be,
Yours, respectfully,
JAMES ROSS,
Chairman of the joint committee.

Committee—Messrs. Ross and Denny, of the select council, Messrs. Pettigrew, S. R. Holmes and Bailey, of common council.

James S. Stevenson, Esq.
Acting Commissioner.

D.

Honourable James S. Stevenson, Acting Commissioner, Western Division, Pennsylvania Canal.

Whereas the select and common councils of the city of Pittsburg, by their resolutions of the 25th of April, in the year 1827, and their ordinance of the 19th of May, 1827, did promise and guarantee to the state of Pennsylvania, that if the expense of making and completing that section of the Pennsylvania canal extending from the eastern line of the city, by a tunnel through Grant's hill, to the mouth of Sook's run, should amount to more than $65,567 35, that then the city of Pittsburg would pay to the state all the surplus found necessary for completing that section of the great canal; all which more fully appears by said resolution and ordinance:

And whereas afterwards, the said councils on the 27th of June, 1827, by their committee appointed for that purpose, and also by other persons acting under their sanction, did propose and offer in writing to the then acting canal commissioner, to make and complete the whole of said section including its locks and tunnel, to the full satisfaction of said commissioner, and of the engineers employed by the state; these offers were rejected, and the contract for making and finishing this section was given by the canal commissioner to Messrs. M'Avey *&* Co. at their offer to complete the same for $61,000; thus saving to the state $4,567 35.

And whereas the said M'Avey & Co. being unable to fulfil their contract, did cease and desist from working thereon, and applied to the legislature for relief, and did finally surrender and cancel their contract; and the legislature did relieve them by directing that on such surrender they should be paid for all their labour done under said contract; and further directed that the completion of those works on said section should be offered to the city of Pittsburg, on the terms and principles contained in their guarantee above referred to.

And whereas James S. Stevenson, the present acting canal commissioner, did on the 22d instant communicate to the select and common councils of the city, the foregoing resolution of the legislature, and did also tender to said councils the proposals to complete said unfinished work in said section, as directed in and by said resolution; which proposals the councils have this day declined to accept, believing that the city was altogether discharged from its guarantee; because their offers to the former canal commissioner on the 27th of June, 1827, had been rejected; because that officer had made a contract with M'Avey and Co. more favourable to the state, and entered into articles with them; and because the state had released these contractors without asking from them any forfeiture or deduction for their failure to perform their contract as stipulated in their article. All those acts were done without the assent or privity of the city of Pittsburg, which is now called upon to make good the whole voluntary advances authorized by the state, whose bounty to the contractors, is converted into a burthen upon the city.

Now the select and common councils, anxious that this great work should not sink into ruin, or be impeded or discredited in its progress; but on the other hand, prosecuted with promptitude and energy, and relying also on the justice, liberality and magnanimity of the legislature, to rectify all that is now erroneous or amiss, as soon as the mistake is made known to them, have resolved to afford in advance all the aid that is required of them, and to await the ultimate decision of the legislature itself, when correctly informed on the question of liability under the guarantee, for completing the works on this section of the Pennsylvania canal. They therefore have agreed to pass the following ordinance, viz:

An ordinance providing funds to aid in finishing that section of the Pennsylvania canal which extends from the east line of Pittsburg, through Grant's hill to the mouth of Sook's run on the Monongahela river.

Section 1. Be it ordained and enacted by the citizens of Pittsburg in select and common councils assembled, that the property, revenue and credit of the city of Pittsburg, be and the same is hereby irrevocably pledged and bound to the commonwealth of Pennsylvania, for the payment towards the completion of that part of the western division of the Pennsylvania canal, extending from the eastern line of the city, through Grant's hill and by Sook's run to the Monongahela river, any sum not exceeding ten thousand dollars, should the same be required, over and above the unexpended balance of the original appropriation of $65,567 35 set apart for that part of the canal. Provided the legislature of Pennsylvania, by a specific act to be passed within two years from the 1st of July next, shall require the same or any part thereof to be paid; and provided further that nothing herein contained shall prejudice the claim of the right of the city to stand discharged, as they firmly believe they ought to be, from the guarantee created by the resolutions of the councils of the 25th of April, 1827, and of the ordinance of the 19th of May, 1827.

Ordained and enacted into a law in councils, the 25th day of June, A. D. 1829.

Attest—E. J. Roberts,
Cl'k Common Council.
Samuel H. Scott,
Cl'k Select Council.

ALEX. JOHNSON, Junr.
Pres't Common Council.
JAMES ROSS,
Pres't Select Council.

The undersigned clerks of the select and common councils, do hereby certify the foregoing to be a true and faithful copy of the original ordinance.

E. J. ROBERTS,
Clerk Common Council.
SAMUEL H. SCOTT,
Clerk Select Council.

Pittsburg, June 24, 1829.

ion Pennsylvania canal,
1829, by James S. Ste-

	l.	Am't due.
Walsh		$735 42

Ki

	Grubbing.	Amount paid.
Excava aque	$ 12	1494 25 599 50
		$2093 75

	done.	Amount due.
Aqued Stonin Gravel	00 rches	$9,850 00

72

een

lue

55
54
40

69

otal

94

Now the select and common councils, anxious that this great work should not sink into ruin, or be impeded or discredited in its progress; but on the other hand, prosecuted with promptitude and energy, and relying also on the justice, liberality and magnanimity of the legislature, to rectify all that is now erroneous or amiss, as soon as the mistake is made known to them, have resolved to afford in advance all the aid that is required of them, and to await the ultimate decision of the legislature itself, when correctly informed on the question of liability under the guarantee, for completing the works on this section of the Pennsylvania canal. They therefore have agreed to pass the following ordinance, viz:

An ordinance providing funds to aid in finishing that section of the Pennsylvania canal which extends from the east line of Pittsburg, through Grant's hill to the mouth of Sook's run on the Monongahela river.

Section 1. Be it ordained and enacted by the citizens of Pittsburg in select and common councils assembled, that the property, revenue and credit of the city of Pittsburg, be and the same is hereby irrevocably pledged and bound to the commonwealth of Pennsylvania, for the payment towards the completion of that part of the western division of the Pennsylvania canal, extending from the eastern line of the city, through Grant's hill and by Sook's run to the Monongahela river, any sum not exceeding ten thousand dollars, should the same be required, over and above the unexpended balance of the original appropriation of $65,567 35 set apart for that part of the canal. Provided the legislature of Pennsylvania, by a specific act to be passed within two years from the 1st of July next, shall require the same or any part thereof to be paid; and provided further that nothing herein contained shall prejudice the claim of the right of the city to stand discharged, as they firmly believe they ought to be, from the guarantee created by the resolutions of the councils of the 25th of April, 1827, and of the ordinance of the 19th of May, 1827.

Ordained and enacted into a law in councils, the 25th day of June, A. D. 1829.

Attest—E. J. Roberts,	ALEX. JOHNSON, Junr.
Cl'k Common Council.	*Pres't Common Council.*
Samuel H. Scott,	JAMES ROSS,
Cl'k Select Council.	*Pres't Select Council.*

The undersigned clerks of the select and common councils, do hereby certify the foregoing to be a true and faithful copy of the original ordinance.

E. J. ROBERTS,
Clerk Common Council.
SAMUEL H. SCOTT,
Clerk Select Council.

Pittsburg, June 24, 1829.

No. 1.—Abstract of labor done on the Pittsburg and Pine creek line, Western Division Pennsylvania canal and disbursements on the same, between 1st June and 20th November 1829, by James S. Stevenson, Acting Commissioner.

Thorough Cut through Grant's Hill.

Contractors names.	Excavation of clay.	Price.	Slate.	Price.	Rock.	Price.	Am't paid.	Am't due.
Walsh and Bartleys	19,919 yds.	18cts.	4500	30		50	$4,200 00	$735 42

Section and Locks Nos. 1, 2, 3 and 4, Pittsburg line.

Kinds of work and where.	Names of Contractors.	Clay.	Price.	Embankment.	Price.	Grubbing.	Amount paid.
Excavation and embankment between All. aqueduct and south side 7th street,	M'Avey and Co.	6052 yds.	10 cts.	6052	14½	$ 12	1494 25
Miscellaneous,	Ditto.						599 50
							$2093 75

Aqueduct over the Allegheny at Pittsburg, &c

Kinds of work, and where.	Contractors names.	Price.	Amount paid.	Paid by J. S. Stevenson	Work done.	Amount due.
Aqueduct	Le Baron and Lothrope	$100,000	$ 85,150	$15,150 00	$95,000	$9,850 00
Stoning piers of ditto	M'Avey and Co.	$125 pr. prch		856 25	685 perches	
Gravelling ditto and puddling abutments	Alexander M'Farland			490 80		
				$16,497 05		$9,850 00

nal, and disbursements on the same, between

No. 2.—Ab acting commissioner.

	e.	Miscellaneous.	Whole am't	Am't paid.	Amount due
From 9th May	0		$3663 59	$3663 59	
From sec. 30		Balance		13 12½	
	0		1203 12½	1203 12½	
				29 62½	
Repairing secti	0	materials	2502 59	2502 59	
0 to !		304 92	407 42	407 42	
Buffa		54 94	1675 65	1100 00	575 65
sec. (			1010 64	650 00	360 64
32 to			741 40	500 00	441 40
				200 00	
Buff			11,447 16½	10,069 47½	$1377 69

	nt paid	Final
	3 93	Final
Waste Wier	9 10	do
Bridge on se	3 87½	do
Lime for rep	3 62½	do
Fence at nat	3 18¾	do
on sec	1 07	do
Bridge and b	4 78¾	
	9 32	do
Bridge on se	34 10	

	ellaneous	Price.	Am't paid.	Am't due	Final.	Total.
Whe						
	ber, &c.	$120	$250 00	$544 35	Final.	$794 35
Around loc						

ve $10,903 57—Amount due $2,172 04

No. 2.—Abstract of labor done on the Allegheny Line. Western Division Pennsylvania Canal, and disbursements on the same, between 1st June and 20th November 1829, by James S. Stevenson, acting commissioner.

REPAIRS.

Where made	Contractors names.	No. days work.	Price.	No. night work.	Price.	Super.	Price.	Miscellaneous.	Whole am't	Am't paid.	Amount due
From 9th May to 3d July 1829: From sec. 30 to No. 75	John Keene	3346½	87½	667⅛	1 00	45	1 50		$3665 59	$3663 59	
	do							Balance		13 12½	
	Jos. Alexander	1147	do	143½	do	56	1 00		1203 12½	1203 12½	
Repairing section No. 53,	Alexr. Stewart	33⅓	do							.29 62½	
0 to No. 32, 8th May to 5th July	John Kerns	2331¼	do	383¼	do	53	1 50	materials	2502 59	2502 59	
Buffaloe creek aqueduct	James Bole	83	1 00			13	do	304 92	407 42	407 42	
sec. 0 to 32, 6th July to 30th Oct.	John Kerns	1293⅘	87½	246¼	do	95	do	54 94	1675 65	1100 00	575 65
32 to 75, 1st July to 1st Oct.	Horace Smith	747	do	157	do	80	do		1010 64	650 00	360 64
15th July to 1st Oct.	James Hare	579¼	do	137⅜	do	65	do		741 40	300 00	441 40
Buffaloe creek aqueduct,	Joseph Coltart									200 00	
									11,447 16½	10,069 47½	$1377 69

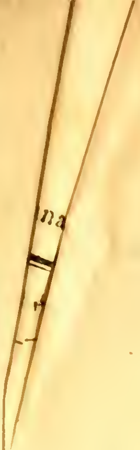
MISCELLANEOUS.

Kinds of work and where.	Contractors Names.	Amount paid	Final
Waste Wier around lock No. 2,	William Martin,	$26 93	Final
Bridge on section No. 30,	same	129 10	do
Lime for repair of Buffaloe aqueduct,	Asa Rowley,	93 87½	do
Fence at natural basin, section 53,	John Keene,	13 62½	do
on sections No. 59 and 60,	William Henderson,	93 18¾	do
Bridge and bridge embankment on section,	Jacob Staley,	151 07	do
		504 78¾	
Bridge on section No. 50,	John Keene,	79 32	do
		$584 10	

WASTE WIER.

Where located	Names of contractors	Embk't.	Price.	Puddling	Price.	Perches masonry.	Price.	Miscellaneous	Price.	Am't paid.	Am't due	Final.	Total.
Around lock No. 3 and 4,	John Moore,	2753 yds,	20	160 yds.	31¼	50	1 75	Timber, &c.	$120	$250 00	$544 35	Final.	$794 35

Total disbursements as above $10,903 57—Amount due $2,172 04


na

No. 6.

No. 4.—Abstract of disbursements on the Kiskimanitas and Conemaugh line, West division Pennsylvania Canal, between the 1st June and the 20th November, 1829, by J. S. Stevenson, Acting Commissioner.

Kinds of work and where located.		Names of Contractors.	Amount paid.	Amount due.	Final.
		SECTIONS.			
Section	No. 79	Sherman Bills	$ 720 00	$ 468 75	Final.
	82	William Warren & Co.	173 88	-	do
	85	John Hamilton	74 30	-	do
	83	Philip Haley	175 86	-	do
	86	Peebles & Patterson	450 14	-	do
Widening bank on	87	James Speer	196 50	-	do
Work on	88	Do.	645 74	-	do
Puddling on	90	J. Drum	388 25	-	do
Ditto	92 and 93	Patrick M'Laughlin	3,824 00	-	do
Repairing	90	S. Bills	210 00	-	do
Slope wall	96	David Culbertson	130 91	-	do
Excavation, &c.	101	W. Bradley	561 31	-	do
Do below bottom	109	John Wyndrum	804 20	-	do
Stone protection	111	J. Plummer	104 50	-	do
Excavation below bottom	111	John Wyndrum	193 60	-	do
Work on	112	Brown & Sawyer	2,625 10	-	do
Excavation below bottom	112	Do do	874 40	-	do
Altering	110	Do do	625 50	-	do
Work on	113	Harkins & Co.	198 21	-	do
Ditto	116	Bernard M'Manus	1,696 00	-	do
Ditto	117	M. Rafferty	269 44	-	do
Excavation below bottom	117	Do	93 40	-	do
Embankment on	122	John M'Laughlin	213 75	-	do
Work on	125	John Henry	1,532 87½	-	do
			$ 16,831 86	$ 468 75	- -
		LOCKS.			
	No. 6	John Moore	$ 180 13	-	Final.
	8	J. Drum	64 45	-	do
	11	Woodworth & Martin	193 19	-	do
	12	Sanger & Ingerson	466 12½	122 32½	do
Wall at lower side of	5	N. Gould	286 65	-	do
Pumping water out of	5 &c.	Do	255 00	-	do
Wall at head and foot of	5	Do	142 00	-	do
Pumping at G. lock 3 and lift locks	4	S. Bills	1,261 50	-	do
Wall at head of G. lock	3	Do	244 00	43 00	-
Finishing lock	10	Jacob Hobaugh	60 00	-	Final.
Wall at head of lock	9	Wm. Idings	94 64	-	do
			$ 3,247 68	$ 165 32½	- -

Kinds of work and where located.		Names of Contractors.	Amount paid.	Amount due.	Final.
		DAMS.			
	No. 3	Sherman Bills	$4,875 00	$ 805 48	-
	5	S. Moorehead & Bishop	374 00	-	Final.
Crib protection at dam	5	Do do	2,635 50	-	do
Embankment in and on dam	5	Do do	591 00	-	do
			$8,475 50	$ 805 48	- -
		TUNNEL, DAM No. 4, &c.			
On tunnel, dam and G. lock		Stewart & Neel	$ 3,172 11	-	Final.
Guard bank at head of G. lock	4	Do do	876 40	-	do
Slope wall at head and foot of	4	Do do	1,638 80	-	do
Crib protection dam	4	Do do	149 80	-	do
Embankments in and on dam	4	Do do	460 00	-	do
			$6,297 11	- -	- -
		WASTE WIERS.			
On Section	No. 90	Thomas Howlan	$ 216 20	-	Final.
Ditto	95	Edward Carleton	160 00	39 50½	do
Ditto	104	Stewart & Neel	261 78	-	do
Ditto	109	Sanger & Ingerson	154 93	-	do
Ditto	120	Crayton & M'Carthy	50 73	-	do
Protection for waste wiers on	119	Daily & Brown	40 32	-	do
			$ 883 76	$ 39 50½	- -
		BRIDGES, BRIDGE EMB. WALLS & FOUNDA.			
Towing path bridge on	85	N. Gould	$ 74 00	-	Final.
Bridge at foot of lock	5	J. Anderson	9 50	-	do
Bridge on section	88	James Speer	481 60	-	do
Farm bridge and embankment on	95	D. Anderson	220 00	-	-
Wall under rock bridge	96	D. Culbertson	25 48	-	Final.
Rock bridge embankment	96	Ditto	80 60	-	do
Farm bridge embankment	96	Ditto	9[illegible] 75	-	do
Wall under farm bridge	96	William Hart	2[illegible] 52	-	do
Rock bridge embankment on	101	Robert Kelly	9[illegible] 00	-	do
Rock bridge foundation and repairs	114	Fream & Griffith	[illegible]	-	do
Bridge embankment on	116	B. M'Manus	1[illegible]2	-	-
Bridge foundation on	116	Robert Thompson	8[illegible] 90	-	Final.
Farm bridge on	96	Robert Graham	3[illegible] 00	-	do
Road bridge on	111	John Gallagher	5[illegible] 80	-	do
Do do	117	Adam Ross	85 50	-	do
Farm bridge on	119	Robert Graham	54 50	-	do
Towing path bridge	109	Sanger & Ingerson	75 00	-	do
			$1,865 [illegible]1	- -	- -

Entire cost of tunnel, dam, guard lock 4, and Section 104 $ 38,625 11

Total cost of whole $41,750 11

No. 4.—Abstract of disbursements on the Kiskiminitas and Conemaugh Line—Continued.

Kinds of work and where located.	Contractors Names.	Amount paid.	Amount due.	Final.
	PAINTING.			
Bridges on Sects. 88, 90, 91 & lock 9	Jacob Drum	$ 75 00	-	Final.
Tow path bridge at lock 13 and locks 12 and 13	Sanger & Ingerson	60 00	-	do
		$ 135 00	- -	- -
	LOCK HOUSES.			
No. 6	John White	$ 305 50	-	Final.
9	Ditto	158 81	-	do
10	William Hall	170 37½	-	do
11	P. Keener	141 00	-	do
12	Ditto	312 01	-	do
13	John Gallagher	425 00	-	do
15	William Buchanan	303 93	-	do
17	Ditto	123 93	-	-
14	William Russell	45 00	-	-
		$1,985 35	- -	- -
	HILL SLIPS.			
On Section No. 93	Cochran & Duncan	$ 2,068 25	-	Final.
Ditto 94	Johnston & Carleton	669 55	-	do
Ditto 104	Stewart & Neel	1,170 25	-	do
Ditto 112	Brown & Sawyer	1,945 05	-	do
Adjoining guard lock 8	W. Webb	561 50	-	do
On Section 98	Samuel Love	205 63	-	do
Ditto 87	James Speer	2,357 12	-	do
Ditto 111	James M'Dermott	66 42	-	do
		$9,043 77	- -	- -
	FENCING.			
On Section No. 91	James Anderson	$ 255 50	-	Final.
Ditto 94	William Hart	17 00	23 00	-
From 96 to 103	R. Criswell	239 89½	-	-
From 120 to 123	Robert Graham	50 00	-	-
		$ 562 39½	$ 23 00	- -
	ROADS.			
On Section No. 94	James Cain	$ 231 25	-	Final.
Ditto 114	S. Griffith	42 00	-	do
		$ 273 25	- -	- -

Kinks of work and where located.	Names of Contractors.	Amount paid.	Amount due.	Final.	
	WALLS.				
Battered wall at Conemaugh aqueduct	Brown, Pegan & Co.	$ 453 00	-	Final	
Wall above and below locks No. 12 and 13	Sanger & Ingerson	334 34	-	do	
Wall on Section No. 109	Do do	180 00	-	do	
Wall &c. between aqueduct and tunnel	Brown, Pegan & Co.	1,027 00	-	do	
Wall at west end of aqueduct	Do do	386 65	-	do	
Wall above guard lock, 3 Section 122	Grier & M'Lane	98 32	-	do	
Wall on Section No. 123	William Bradley	162 00	-	do	
		$2,641 31	- -	- -	
	AQUEDUCT.				
Over Conemaugh	Brown, Pegan & Co.	$5,328 81	1000 00	Final	Total cost of aqueduct $55,957 31
	MISCELLANEOUS, 1.				
Railing on towing path, Section 123	William Bradley	$ 20 50	-	Final	
Work between locks 12 and 13	Sanger & Ingerson	323 42	-	do	
Embankment at lock 13	John Wyndrum	98 64	-	do	
Embankment on Section 111	John Gallagher	69 66	-	do	
Lock tending	Sundry lockkeepers	265 00	-	-	
		$ 777 22	- -	- -	
	REPAIRS.				
On Sections 80, 81, 82, 83, and 84	Armstrong & M'Kee	$ 301 25	-	Final	
On Section 103	D. Leech	27 37½	-	do	
From Section 116 to Blairsville	Mathew Daily	325 71	-		
Ditto 79 to 84	J. Black	700 00	298 46	Final	
Dam No. 4, to Section 115	John Wyndrum	876 18	-		
On Section 104, tunnel, &c.	Thomas Neel	100 00	-		
From 84 to 100	James M'Laughlin	730 22½	-		
		$3,060 74	$ 298 46	- -	
	MISCELLANEOUS, 2.				
Lock No. 9	Johnston & Jones	$ 63 26	-	Final	
Excavation and Puddling Section 118	Daniel Gilmartin	413 20	-	do	
Repairing, &c. embankment at lock 17	Thomas Johnston	203 36	-	do	
		$ 679 82	- -	- -	

Total disbursements on Kiskeminitas and Conemaugh line as above $ 63,644 61 Am't due $2,800 51

No. 7.

No. 5.—Tabular statement of labour done, monies paid, amounts due, and original and present estimates of work on the Ligonier line, western division, Pennsylvania canal.

f on.	Names of Contractors.	Grubbing.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, detached rock, or cemented gravel.	Price.	Embankment.	Price.	Miscellaneous.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.	
1	George Mulhollan,	20 chains	$120	7165	8cts.	227	25cts	3072	20cts.	3830	8cts.		$1,670 75	$1,105 00	$565 75	$1,735 39	$1,226 52	
2	J. & J. Sheridan,	Section	65	4342	6¼	584	37	1595	27				983 10¼	710 00	273 10¼	1,977 66	1,235 30	
3	M'Kinstey & Larden,	do	225	4320	8	6250	35	7955 93	15			Puddling 308 yards at 16 cents $49 28	4,000 77	3,078 00	922 77	4,000 77	2,105 35	completed.
4	John Clarke,	do	250	12,081 03	8	3648	37½	7000	19				3,914 48	3,099 00	815 48	3,914 48	4,748 28	completed.
5	Whelan & Johnston,	do.	50	1623	7	3250	25	3000	18	17935	8		2,950 91	2,559 00	391 91	3,383 16	2,135 33	
6	Christopher Hill,			8475	9	311	50	1260	25	200	11		1,255 25	706 00	549 25	1,440 01	386 44	
7	Cochran & Duncan,	do	10	2905 84	7	1400	38	4000	20	4902 16	9		1,986 60	1,172 00	814 60	1,986 60	855 70	completed.
8	Kenny & Cassidy,	do	200	5237	7	4499	31	4773	29				3,345 45	2,113 00	1,232 45	4,054 50	1,242 20	
9	J. & D. M'Carthy,	do	180	3290	7	3050	36	1650	28				1,970 30	1,599 00	371 30	1,970 50	1,350 00	completed.
10	Davis & Henry,	do	300	3708	7	7987	34½	3800	23				4,188 51	4,188 51		4,188 51	1,500 00	completed.
11	George Grier & Co.	do	293	3512	7	3296	42	3694	20	1100	9		2,760 96	2,269 00	491 96	2,760 96	1,564 00	completed.
12	Henry Benn,	do	180	3757	8	3411	30	3641	15				2,050 01	1,401 00	649 01	2,919 40	1,285 44	
13	David Anderson,	do	224	5000	7½	700	43	2400	25	3500	9		1,815 00	1,257 00	558 00	1,815 00	987 50	completed.
14	Brown & Hulet,	do	250	6288	7¼	980	45	3500	24	702	9		2,050 06	1,822 00	238 06	2,050 06	1,180 00	completed.
15	M'Kenstry & Larden,	do	300	8551	8	2611	40	2299	20				2,488 28	2,036 00	452 28	2,488 28	1,410 00	completed.
16	Armstrong & Patterson,	do	190	2032	7	7954	45	3189	30				4,868 24	3,632 00	1,236 24	7,266 77	3,458 20	
17	Hugh M'Crea,	do	120	5672	7	16,244	30	3693	15				5,944 19	4,262 00	1,682 19	7,751 65	2,127 20	
18	Samuel Richards,	do	150	16,742	11	8444	46	12,639	33				10,046 73	6,742 00	3,304 73	13,260 23	5,502 80	
19	Polly & Johnston,	do	40	18,364	11	11,619	46	5998	33	5400	15	Stone embankments, $7300 30.—Work done under first contract, $1,686 02	14,070 14	10,739 00	3,331 14	20,015 09	9,053 00	
20	J. & A. St. Clair,	do	175	6450	7	100	40	2150	36				1,440 50	1,198 00	242 50	1,622 50	773 92	
21	J. Maloney,	do	200	6580	7	180	30	4204	28	1600	9		2,035 72	1,320 00	715 72	2,187 95	1,146 68	
22	Nicholas West,	do	120	8200	8	11,290	39	7950	25				7,166 60	6,251 00	915 60	9,472 31	5,329 53	
23	Moore & Maloney,	do	100	10,450	7½	4150	37	9164	31				5,260 09	2,846 00	2,414 09	6,181 71	3,093 68	
24	Walsh & M'Colgan,	do	50	420	6	30	37			18120	8		1,536 05	1,228 00	308 05	7,212 21	3,322 28	
25	Dodds & Co.	do	100	5174	8	120	50	1496	30	200	10		1,042 72	723 00	319 72	1,652 20	863 20	
26	M'Carty & Co.	do	150	7860 33	7½	755	39	733	25	2088 81	11		1,446 93	1,213 00	233 93	1,446 93	885 90	completed.
27	Moore & Maloney,	do	112 50	3450	7	342	36	1040	31				799 82	640 90	158 62	1,917 12	1,696 40	
28	M'Bride & M'Laughlin,			11,504	10	2502	45	8130	35	1700	10	Grubbing under first contract, $150 00	5,441 80	3,698 00	1,743 80	7,125 00	3,773 38	
29	Dodds & Co.	do	110	6510 78	10	50	40	3040	30	4591 15	10		2,185 19	1,624 00	561 19	2,185 19	1,173 00	completed.
30	Forfeited,												316 00	316 00		1,660 90	1,103 69	
31	John Corboy,	do	200	10,330	8	332	37½	3245	33	2340	10		2,455 09	1,908 00	547 09	2,479 39	1,615 52	
32	Brown and Bradley,	do	45	5000	7½			250	20				470 00	376 00	94 00	2,018 31	1,840 40	
33	Riley & Kennedy,	do	100	15,122	6	19,740	30	9930	23	2500	9	Puddling 1960 at 18 cents $352 80	9,791 02	7,261 00	2,530 02	13,792 41	6,127 24	
34	Nicholas Day,	do	160	5765	12			805	33	4601	15		1,807 60	1,219 00	588 60	2,173 42	1,058 40	
35	Edmund Burke,	do	158	9210	9½	80	45	1210	30				1,431 95	937 00	494 95	1,296 14	721 98	
36	M'Mahon & Co.		120	3212	7¼	155	40	525	32				598 93	359 00	239 93	2,504 27	1,358 07	
37	Johnston & Co.	do	140	10,460	7½	1600	39½	5200	30	800	12		3,212 50	2,313 00	899 50	3,360 10	1,195 80	
38	Mallet & Co.	do	60	10,940	9	160	39	3170	30	10204	12		3,282 48	2,280 00	1,002 48	3,908 10	2,312 82	
39	Forfeited,												178 00	178 00		2,106 00	1,099 80	
40	M'Entyre & Co.	do	200	8651	8	2431	40	5170	25	2750	11		5,479 48	2,752 00	727 48	4,052 85	2,417 94	
41	Daniel Gilmartin,	do	170	7720	6	18,164	37½	6310	28	1150	8		9,303 50	7,079 00	2,224 50	11,311 72	5,326 18	
42	Riley & Kennedy,	do	200	6407	6	19,296	33	9131	24				9,143 54	7,743 00	1,400 54	11,275 45	7,144 82½	
43	Do do	do	100	6420	6	7710	40	5370	20	9150	9¾	Puddling 220 yards at 15 cents, $33 00	5,568 32½	3,972 00	1,596 32½	6,229 54	3,441 93½	
44	Thomas Riley,			5065	12	243	40	640	29			Work done by former contractor, $812 00	1,702 60	1,396 00	306 60	2,636 14	1,749 00	
45	Blakeley & Lewis,	do	300	13,437 09	8	1975	47	3613 40	33	258 16	11½		3,525 33	3,122 72	402 61	3,525 33	1,117 92	completed.
46	Welsh & Collins,	do	300	5375	8	3824	37	2857	25				2,859 13	2,123 00	736 13	3,206 18	1,484 76	
47	Lonegan & Co.	do	250	3960	7½	6838	31	4210	25	1120	8		3,813 58	2,640 00	1,173 58	3,959 60	3,342 44	
48	Do do	do	250	1145	9½	8452	31	1860	25	1376	8		3,551 07½	2,649 47	881 60½	3,915 50	1,600 00	
49	Wilson & Peacock,	do	290	3382 93	8	2556	40	1099 20	26	752	10		1,940 03	1,546 00	394 03	1,940 03	1,830 00	completed.
50	Edmund Burke,	do	200	3036 11	8¼	3408	41						2,280 41	1,810 00	470 41	2,280 44	1,272 50	completed.
51	Do do	do	185	5675	8¼	1697	40	695	21	125	9	Masonry in two culverts, 15 perches at $1 50 $22 50	1,511 63¾	1,511 68¾		1,511 68¾	1,080 00	completed.
52	John Henry,	do	410	3260	9	1163	37½	1293	23	7145	18		2,726 57½	1,974 86	751 51½	3,020 57	1,325 00	
53	Corran & Kelly,	do	320	5892	9	1636	45	2534	23	675	9		2,230 05	1,565 00	665 05	2,814 07	1,040 00	
54	Thomas Riley,	do	300	3105	8	2955	37	2265	25	1654	11		2,390 02	2,146 51	243 51	2,390 02	1,250 00	
55	Wm. W. Martin,	do	340	2860	7	1717	40	1284	25	1182	11		1,678 02	1,205 22	472 80	2,069 46	1,420 00	
56	J. & W. Andrews,	do	285	8331	8	7400	33	6984	17	1936	8		4,735 64	3,064 00	1,671 64	5,293 01	2,602 05	
57	George L. Dickey.	do	200	3940	7	6956	39	3624	18¾	3060	9		4,155 24	3,063 00	1,092 24	6,259 82	3,647 22	
													$190,832 48¾	$145,741 87	$47,010 59	$242,972 19¾	$127,115 94	

No. 5.—Tabular statement of labour done on Ligonier line, &c.—Continued.

LOCK SECTIONS.

No. of Sections.	Names of contractors.	Grubbing.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, &c.	Price.	Embankment.	Price.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
1	Jones, Johnston, & Co.	6 chains	$ 7 50	1000	10					1280	12½	$ 305 00	$ 198 00	$ 107 00	$ 422 50	$ 769 76
2	Do do do					275	45	825	25	350	12½	373 75	245 00	128 75	557 75	565 76
3	Philo Ingerson	6 chains	7	204	10	1104	45	138	25			593 70	465 00	128 70	773 65	764 16
4	J. & J. Atkinson														338 26	591 00
5	Moore & M'Carthy	6 chains	7	869	10	484	45	579	25			491 45	390 00	101 45	540 45	822 00
6	Woodworth & Martin	6 chains	7	600	9	1215	45	1200	25			942 75	762 00	180 75	1,317 02	842 00
7	Brown & Keely	6 chains	8 50	300	10							81 00	41 00	40 00	341 15	678 50
8	Somers & Morara	6 do	9			452	45	112	18			250 56	32 00	218 56	250 56	553 80
9	Do do	6 do											22 00		27 00	559 80
10	Smith, Gamble, & Co.	6 do											22 00		563 00	674 00
11	Do do												32 00		188 60	451 84
12	Do do	6 chains	6	275	9			50	20			70 75	24 00	46 75	283 25	376 43
13	Nicholas West												26 00		454 25	591 68
14	Sylvanus Lothrop														202 06	336 80
16	Smith, Gamble, & Co.									706	12½	88 25	104 00		215 25	520 60
17	Do do														366 22	460 56
18	Johnston & Jones												80 00		156 12	434 00
19	Do do			646	12			220	33			150 12	120 00	30 12	543 18	452 80
20	M'Mahon & Co.		54	546	12			1060	33			469 32	423 00	46 32	575 85	614 28
21			"												357 00	558 29
22															580 00	510 00
23	Fenton & Co.														430 35	496 00
24															879 40	1,733 00
25	Kelly & Co.											302 80	242 40		926 75	642 00
26	Wm. W. Martin		108	918	9	122	45	194	25			294 02	173 36	120 66	864 13	552 00
27	Ball & Chamberlain		125	4160	10	852	62	782	26			1,272 56	779 00	493 56	1,799 18	1,568 00
												$ 5,383 25	$ 4,154 76	$ 1.642 62	$ 13,952 93	$ 17,099 11

DAM SECTIONS.

No. of Sections.	Names of contractors.	Grubbing.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, &c.	Price.	Embankment.	Price.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
1	Wm. P. Sterret	6 chains	$ 8 00	740	12½	1477	45	1477	25			$ 1,174 40	$ 890 00	$ 284 40	$ 1,368 25	$ 686 00
2	David Sanger	6 do	8	766	10	766	45	766	25			660 80	559 00	101 80	845 40	589 80
3	Sutton & Mebon			193	10	200	50	187	25			166 05		166 05	1,102 00	1,822 50
4	Merrills & Addison			221	10	174	50	269	25			176 35	64 80	111 55	1,035 70	
												$ 2,177 60	$ 1,513 80	$ 663 80	$ 4,351 35	$ 3,098 30

GUARD LOCKS.

No. of Sections.	Names of contractors.	Grubbing.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, &c.	Price.	Embankment.	Price.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
3	Bole & Chamberlain		$ 40 00	1354	12½	736	50					$ 577 25	$ 216 00	$ 361 25	$ 721 00	
4	Love, Woodworth, & Co.														892 35	
												$ 577 25	$ 216 00	$ 361 25	$ 1,613 35	

No. 5.—Ligonier line—Continued.

LOCKS.

of k.	Names of Contractors.	Mason work done and materials furnished.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, &c.	Price.	Embankment.	Price.	Puddling.	Price.	Miscellaneous.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
1	Jones, Johnston & Co.	630 perches	$4 90	1592	17			530	30						$ 3,516 64	$ 2,942. 00	$ 574 64	$ 5,311 14	$ 4,757 50
2	Do do do	580	4 90			786	60	1574	30						3,785 80	3,215 00	570 80	5,852 80	4,162 50
3	Philo Ingerson	940	4 62	300	17	2935	50	300	30			330	25		6,033 80	4,908 00	1,125 80	7,494 40	5,008 50
4	J. & J. Atkinson	650	4 75	651	17	651	60	651	30	400	16	360	25		3,938 07	3,315 00	623 07	4,594 07	2,800 00
5	Moore & M'Carthy	760	4 25	3400	17			1700	30			150	25		4,355 50	3,386 00	969 50	6,651 25	4,713 75
6	Woodworth & Martin	1100	4 62½	2188	17	1104	60	1374	30			500	25		6,659 06	6,050 00	609 06	8,375 06	5,250 00
7	Brown & Keely	704	4 40	1171	17	36	60	1171	30			200	25		3,719 57	2,984 00	735 57	5,213 97	3,468 75
8	Summers & Morara	800	4 50			2728	60	890	30	580	16	360	25		5,686 60	4,340 00	1,346 60	6,609 80	3,468 75
9	Do do	270	4 50	800	17	1800	75								2,701 00	2,401 00	300 00	5,558 00	2,957 50
10	Smith, Gamble & Co.	35	4 50			1385	60	692	30						1,196 10	954 00	242 00	5,339 60	3,468 75
11	Do do do	750	4 50	800	18	540	60	1325	30	550	16	446	25		4,440 00	3,541 00	899 00	4,742 50	3,000 00
12	Do do do	520	4 50	516	17	516	60	516	30	600	16	200	25		3,038 12	2,400 00	638 12	4,209 62	3,000 00
13	Nicholas West	1100	4 25	1714	17	100	60	1584	50	800	16	570	25		5,772 08	5,109 00	663 08	6,374 33	3,380 00
14	Sylvanus Lathrop															740 00		7,452 16	3,380 00
16	Smith, Gamble, & Co.	678	4 50	1563	20			781	33	650	18	400	26		5,842 33	2,785 00	1,057 33	4,889 33	8,431 25
17	Do do do	250	5 25	1024	20			804	33						1,782 62	1,442 00	340 62	5,441 62	4,625 00
18	Johnston & Jones	80	5 20	1965	24										887 60	710 00	177 60	5,718 00	4,625 00
19	Do do	131	5 20	1410	16										906 80	725 00	181 80	5,826 00	4,625 00
20	M'Mahon & Co.	185	5 00	1100	20	200	50	1060	33						1,594 80	1,420 00	174 80	5,379 80	4,225 00
21																		4,385 10	2,812 50
22																		5,330 00	3,700 00
23	Fenlon, Walsh & Co.	286	4 50	1114	20	936	60								2,171 40	1,747 00	424 40	5,342 40	3,468 75
24	Love, Woodworth & Co.	840	5 25	2040	20	1103	60					1 50	25	Grubbing of lock section, $100.—Bailing water, $250 00.	5,767 30	3,445 00	2,322 30	9,626 50	3,167 50
25	Samuel Kelly & Co.	500	4 12½	1760	20	1410	60					1 40	25	Bailing water, $220 00.	3,515 50	2,705 32	810 18	7,877 00	5,250 00
26	Wm. W. Martin	798	4 40	1686	12½	426	45					1 90	25		3,961 15	2,582 48	1,378 67	4.745 20	3,468 75
27	Bole & Chamberlain	704	4 00	935	20	2175	87½					1 90	25		4,953 62½	3,844 00	1,109 62½	6,080 12	3,468 75
															$ 84,225 46½	$ 67,690 80	$ 17,275 56	$ 154,419 77	$ 104,683 50

GUARD LOCKS.

	Names of Contractors.	Mason work done and materials furnished.	Price.	Excavation of earth.	Price.	Excavation of solid rock.	Price.	Excavation of slate, &c.	Price.	Embankment.	Price.	Puddling.	Price.	Miscellaneous.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
1	Mulhollan & Mahon	1080	4 00			2550	60	850	30	1350	16	270	25		$ 6,388 50	$ 4,832 00	$ 1,556 50	$ 6,754 00	$ 5,625 00
2	David Sanger	1050	4 20	1800	17	300	60	1500	30	700	16	580	25		5.398 00	5,273 00	125 00	6,386 60	6,000 00
3	Bole & Chamberlain	959	4 10	1264	20	1380	60					130	25		5.045 20	2,916 00	2,129 20	6,066 50	5,625 00
4	Love, Woodworth & Co.	270	5 25	1497	20	203	60	700	25						2,013 70	1,150 00	863 70	7,218 15	5,625 00
															$ 18 845 40	$ 14,171 00	$ 4,674 40	$ 26,425 25	$ 22,875 00

DAMS.

No. of Dam.	Names of contractors.	Price.	Work done and materials furnished.	Miscellaneous.	Total.	Amount paid.	Amount due.	Present estimated cost.	Original estimated cost.
1	Wm. P. Sterritt	$ 10.854	$ 9,985 68		$ 9,985 68	$ 7,419 00	$ 2,566 68	$ 10,854 00	$ 8,400 00
2	David Sanger	9,990	7,492 50		7,492 50	5,233 00	2,259 50	9,990 00	9,990 00
3	Sutton & Mebon	9,468	6,627 60		6,627 60	5,888 00	739 60	9,468 00	9,618 00
4	Menell & Addison	8,400	6,300 00		6,300 00	4,966 40	1,334 00	8,400 00	8,400 00
					$ 30,405 78	$ 23.506 00	$ 6.899 78	$ 38,712 00	$ 36,408 00

No. 6.—Abstract of payments in the engineer department of the West division, Pennsylvania canal, between the 1st June and the 20th November, 1829, by J. S. Stevenson, acting commissioner.

ALLEGHENY PORTAGE.

Names.	Situation.	Salary.	Term of service.	Days.	Amount paid.	In full.
Moncure Robinson	Principal engineer	$ 2,000 per ann.	Commenced 20th Feb. 1829.		$ 871 87½	
Wirt Robinson	do ast. do	4 00 per day	20th Feb. to 27th August	189 days	756 00	
F. K Marcell	Sub assistant engineer	1 50 do	do to 17th July	147	220 00	In full
Do do	do and surveyor	2 00 do	17th July to 27th August	42	84 00	do
James S. Keen	do engineer	1 75 do	11th April to 18th July	98	161 50	do
Do do	do and leveller	2 00 do	19th July to 27th August	41	82 00	do
Thomas P. Enoch	do engineer	1 75 do	20th April to 17th July	89	155 75	do
James Calloa	Surveyor & ast. eng.	2 50 do	2d April to 3d June	63	157 50	do
Do do	do do	2 00 do	4th June to 20th July	47	94 00	do
Alexander Worrall	Rodman	1 50 do	20th April to 27th August	130	195 00	do
George Parsons	do	1 50 do	do to 8th June	50	75 00	do
William Shechy	do	1 50 do	14th to 19 April	6	9 00	do
James Woodside	do	1 50 do	27th May to 17th August	83	124 50	do
Frederick Kerr	Chainman	1 00 do	21st April to 18th June	59	59 00	do
John Martin	do	1 00 do	24th April to 3d May	8	8 00	do
Wm. Blair	do	1 00 do	6th July to 12th August	38	38 00	do
Elisha M. Swift	do	1 00 do	29th April to 12th August	106	106 00	do
Wm. Woodburn	Axeman	1 00 do	31st May to 5th July	36	36 00	do
James Rush	do	1 00 do	27th July to 12th August	17	17 00	do
Patrick M'Hugh	do	1 00 do	in May	5	5 00	do
Jacob Adams	do	1 00 do	1st May to 12th August	104	104 00	do
Daniel Walters	do	1 00 do	30th April to 28th June	60	60 00	do
Jos. A. Lilly	do	1 00 do	29th June to August 12	47	47 00	do
Joseph Tierney	do	1 00 do	28th April to August 14	109	109 00	do
Charles Woods	do	1 00 do	26th April to August 16	113	113 00	do
John Adams	do	1 00 do	28th April to 24th May	27	27 00	do
Samuel Short	do	1 00 do	5th to 23d May	19	19 00	do
For instruments, transportation, camp equipage, stationary, postage guides, &c. &c.					1,018 12½	
					$ 4,751 25	

Names.	Situation.	Salary.	Term of service.	Days.	Amount paid.	In full.	In or out of service.
James D. Harris	Principal engineer	$ 2,000 per ann.	17th May to 20th June 1829	35	$ 191 78	in full	out of service.
Alonzo Livermore	do do	do do	between 17 May & 27 Oct.	157	860 27	do	do do
Andrew D. Harris	Principal ast. engineer	4 00 per day	17th May to 17th June	32	128 00	do	do do
Wm. B. Foster, Jr.	do do	3 50 do	do 26th October	163	570 50	do	do do
Atlas E. Lacock	do do	3 50 do	do 19th July	64	224 00	do	do do
Francis Keno	sub assistant engineer	2 00 do	do 4th July	49	98 00	do	do do
James Robinson	do do	2 00 do	do 4th July	49	98 00	do	do do
W. W. M'Nair	do do	2 00 do	do 19th October	156	312 00	do	do do
D. K. Bishop	do do	2 00 do	do 26th October	163	326 00	do	do do
Joseph Coltart	super. masonry	3 00 do	do 25th June	40	120 00	do	do do
Hugh Smith	do do	3 00 do	do 21st June	36	108 00	do	do do
John B. Miles	supervisor	2 50 do	do 8th October	149	372 50	do	do do
Benjamin Lawrence	rodman	1 50 do	do 4th July	49	73 50		do do
Caleb A. Alexander	sub assistant engineer	2 00 do	do do	on acc.	150 00		In service
Charles H. Randolph	do do	2 00 do	do do	do	100 00		do do
Michael Kennedy	do do	2 00 do	do do				do do
John Behan	do do	2 00 do	19th July to do	on acc.	100 00		do do
Joseph Hoope	do do	2 00 do	14th July to 31st October	110	220 00	in full	do do
James E. Day	rodman	1 50 do	May to 31st October	on acc.	85 00		do do
Edward H. Day	axeman	1 00 do	18th May to 17th Sept.	105	105 00	in full	not in service
Curtis Dixon	rodman	1 50 do	do do	on acc.	50 00		in service
John Murray	do	1 50 do	do do	do	50 00		do do
Wm. Snowden	do	1 50 do	19th June to 17th Sept.	do	108 45		do do
Thomas J. Power	do	1 50 do	19th July to do	do	140 00		do do
Frederick Fishell	axeman	1 00 do	17th May to 29th July	74	74 00		do do
Bernard Duffy	do	1 00 do	27th April to 4th July	69	69 00		do do
Patrick Griffin	draftsman	2 00 do	27th May to 4th July	on acc.	100 00		do do
John Armstrong	axeman	1 00 do	June 17 to 31st August &c.	83	83 00		do do
Joseph Sterett	do	1 00 do	July 6 to 20th September	77	77 00		do do
John Armstrong	rodman	1 50 do	September 1 to Nov. 14th	75	112 50		do do
Wm. Lecky	supervisor	2 50 do	May 18th to October 31st	167	417 50		do do
Wm. Hamilton	axeman	1 00 do	May do	on acc.	50 00		do do
Wm. G. Parks	do	1 00 do	May do	12	12 00	in full	out of service.
					$ 5,585 95		

Total amount of payments in engineer department $10,337 20

No. 7.—Schedule of damages paid, and Miscellaneous payments on the western division, Pennsylvania canal, between the 1st June and the 20th November, 1828, by J. S. Stevenson, acting commissioner.

DAMAGES.

To whom paid.	Where occurred.	Amount.	
Matthew Diamond	Pine Creek line	$ 55 00	
Asa Rowley	Allegheny line	119 47	$ 23 18 yet due on costs.
Thomas Barr	Kiskiminitas line	400 00	
D. Culbertson	Kiskiminitas and Con. line	20 00	
		$ 594 47	

Miscellaneous payments $ 756 06

Recapitulation of payments on the western division, Pennsylvania canal, as per abstracts No. 1, 2, 3, 4, 5, 6, and 7, &c. by James S. Stevenson, acting commissioner.

Lines.	Amounts paid in cash, &c.	Am't paid by certificates agreeably to the resolution B. C. C.	Total amount of payments.	Amounts due.	
Pittsburgh and Pine creek lines	$ 13,217 77	$ 18,919 17	$ 32,187 74	$ 11,085 57	
Allegheny line	10,624 25	279 32	10,903 57	2,172 04	
Kiskiminitas line	12,491 56	2,243 97	14,735 53	2,860 37	
Kiskiminitas & Conemaugh line	38,377 43	25,287 18	63,644 61	2,800 51	
Ligonier line	138,020 41	91,744 33	229,764 74	95,795 59	Amount paid by former commissioner on Ligonier line $ 71,834 25.—Total amount paid $ 301,598 99
Engineer department	8,470 18	1,867 02	10,337 20		
Damages	594 47		594 47	23 18	
Miscellaneous	756 06		756 06		
	$ 222,552 13	$ 140,340 99	$ 362,873 92	$ 114,737 26	

No. 11.

No. 8.—Schedule of the names of persons now employed on the western division of the Pennsylvania canal, November, 1829.

Names.	Situation.	Salary.	Where employed.
James S. Stevenson	Acting commissioner	$ 3 00 per day	West division
Samuel Jones	Clerk	Do do	do do
Sylvester Welch	Principal engineer	2000 per ann.	Ligonier line
Anthony B. Warford	Principal assistant engineer	4 00 per day	do do
C. H. Randolph	Sub assistant engineer	2 00 do	Ligonier line
Michael Kennedy	Do do	do do	do do
Solomon W. Roberts	Do do	do do	do do
Edward Miller	Do do	do do	do do
Joseph Hoops	Sub ast. eng. & acting as super.	do do	Kisk. and Con. line
John Behan	Sub assistant engineer	do do	Pittsburgh line
Caleb A. Alexander	Do do	do do	Ligonier line
Robert Hilands	Sub ast. eng. & acting as super.	do do	Kiskiminitas line
James E. Brown	Sub assistant engineer	do do	Ligonier line
John Smyth	Do do	do do	Pitts & pine creek line
Patrick Griffin	Draftsman	2 00 per day	Ligonier line
John Charters	Superintendent of masonry	3 00 per day	Ligonier line
John Murray	Rodman	1 50 per day	Ligonier line
James E. Dey	Do	do do	do do
Curtis Dixon	Do	do do	do do
Thomas J. Power	Do	do do	do do
William Moore	Do	do do	Kisk. and Con. line
William Snowden	Do	do do	Pitts. & pine creek line
John Armstrong	Do	do do	do do do
William Lecky	Supervisor	2 50 per day	
Bernard Duffy	Axeman	1 00 do	Ligonier line
Frederick Fishell	Do	do do	do do
Wm. Hamilton	Do	do do	do do
Joseph Sterett	Do	do do	Pitts. & pine creek line

Names.	Situation.	Where employed.
William B. Foster	Collector of toll	Pittsburgh
David Brenniman	do do	Feeder dam No. 1. Leechburg
Thomas Johnston, of Io.	do do	Blairsville
John Fowler	Toll received	At aqueduct over Alleg. at Pittsburg
Samuel Foreman	do	do do do Kiskiminitas
Samuel Potts	Lock keeper	Lock No. 1. Alleg. and Pine creek lines
James M'Cormick	do	2. do do
Robert Boyd	do	3 & 4. do do
John Speer	do	5. do do
John Liggett	do	6. do do
Jacob Louderback	do	7 & 8. do do
Richard Getty	do	9 & 10. do do
T. D. Brown	do	Guard Lock No. 1. Kiskiminitas line
Michael Risher	do	Lift do 1 & 2. do do
William Smith	do	do do 3. do do
George King	do	Guard do 2. do do
S. Bills	do	do do 3 & Lift No. 4. Kisk. line
Jacob Frick	do	Lift locks 5 & 6. Kisk. and Con. line
David King	do	7. do do
Vorhees Huff	do	8. do do
Jacob Wiester	do	9. do do
Duncan Graham	do	10. do do
Robert Dunlap	do	11. do do
James Getty	do	Guard locks 4. do do
R. Riley	do	Lift locks 12 & 13. do do
William Russell	do	14. do do
B. M'Manus	do	15. do do
George Kinkead	do	16. do do
Thomas Green	do	Guard lock 5. do do

dule of co

s of work

gh G

&c. a

kmen
)
g piers
ling d

ents an
idges,
on sect
bank't pas u

Schedule No. 1.

dule of contracts entered into on the Pittsburg and Pine creek lines of the western division Pennsylvania canal, between the 1st day of November, 1828, and the 15th day of November, 1829.

			Price per cubic yard.				Price per perch.		
s of work to be done and where.	Names of Contractors.	Date of contract.	Earth	Roc	Slate	Embk't	Stone or wall.	Miscellaneous Prices.	Completed, &c.
	Thorough Cut.								
gh Grant's hill	Walsh and Bartleys	15th July, 1829	Cents. 18	Cents. 50	Cents. 30	Cents.			
	Work near aqueduct over Allegheny, at Pittsburg								
&c. at west abutment	Harris & Sanger	25th Nov. 1828					Bat'd wall $1 75, slope wall $1		completed
kment at east end of aqueduct	M'Avey & Co.	6th Jan. 1829				25			
adjoining west do	Thomas Flood	20th Nov. 1828				15			
piers of aqueduct	M'Avey & Co.	16th Sep. 1829					$1 25		completed
ling do and puddling	A. M'Farland	1st do do						Day work 87½ cts. $1 50 for contr.	
	Bridges and Bridge Embankments.								
ents and wing walls at 7th st	M'Avey & Co.	16th Sept. 1829					3 25		
ridges, section 108 and 109	J. & B. Vandergrift	25th Nov. 1828						$150 for each	completed
on section 93, &c	J. Vandergrift	17th June, 1829						$196 for bridge, &c.	
bank't at Penn and Liberty st	M'Avey & Co.	29th Nov. 1828				25			
	Painting.								
Bridges on section 83, 93, 102, 111, 85, locks 6, 7, 8 and Pine creek and Squaw run aqueducts	J. W. Kane	5th Nov. 1829						$253 for whole	completed
Bridges on sec. 91, 104, 107, 108, 109	Do do	1st Aug. 1829						$24 50 each	
Locks Nos, 9 and 10	Isaac Summers	25th Nov. 1828						$25 each	
	Puddling.								
On section No. 97	D. Washburn & Co.	25th Nov. 1828						20 cents per cubic yard	completed
On section No. 99	M. Murdock	Do do						20 do do do	
On section No. 100	P. Lonergan	Do do						20 do do do	
	Miscellaneous.								
Road on section No. 97	Washburn & Co.	25th Nov. 1828						$2 per rod	completed
Excav and embank't between Allegheny aqueduct and 7th st Pittsburg	M'Avey & Co	1st Sept. 1829	10			14		Grubbing, $12	
Excavation on section 109	John M'Caslin	25th Nov. 1828	7						completed
Paving drains on do	P. Lonergan	Do do					1 25		
Excav. culvert, pit on sect. No. 102	P. Cassidy	Do do	50						
Wall and puddling on section 109	Thomas Phillips	Do do					1 50	Puddling, 25 cents per cubic yard	
Paving drains on section 110	Thomas Flood	Do do					1 25		
4 safety gates on sect. 95, 97 and 109	William Dilworth	5th do						$66 each	
Embankment at lock No. 8	Barclay & Walsh	25th do				17			
	Repairing Breaches.								
From section 75 to 113	Wilson Crawford	19th Jan. 1829						Day work, 87½ cents per day, $1 per night, $1 50 per day for contractor	terminated
On sections 100, 101 and road	N. Waldo	17th June, do						Do $1 do do do	do
From section 75 to 113	A. P. Stafford	16th July, do						Do 1 50 do do do	

LOCK HOUSES.

Numbers.	Contractor's Names.	Date of contract.	Price.	Extra work.
No. 5	James Sharp	19th Sept. 1829	$521 33	
To complete No. 6	M. P. Lang	30th Dec. 1828	297 37	
No. 7	Lang & Reynolds	5th Feb. 1829	300 00	At estimate of Engineer

2

Schedule of c

Work

round lo
Do
Do
Do

u
i

en
Do

rom
Do
Do
Do aq
Buffa
epairi
Do
D

No. 18.

Schedule No. 2.

chedule of contracts entered into on the Allegheny line of the western division Pennsylvania canal, between the 1st day of November, 1828, and the 15th November, 1829.

Work done and where.	Names of Contractors.	Date of contract.	Price per cubic yard and perch					Miscellaneous Prices.	Completed.
			Earth.	Rock.	Embk't	Pud.	Stone or wall.		
	Waste Wiers.								
			Cents.	Cents.	Cents.	Cents.			
ound lock No. 2	Martin & Love	1st Nov. 1828	12		12	18	$1 50	Plank $23 per M sheet piling $1 per C timber 12 cts pr foot, iron 12 cts pr lb	completed
Do do 5	Horace Woodworth	Do do	10		12	8	2 25	Do do do do	
Do do 1	Jemes Bole	9th Jan. 1829					1 25	Estimate of enginee	
Do do 6	N. West	25th Nov. 1828					2 25	Do do	
	Painting.								
ll and Deer creek aqueduct	N. P. Lang	7th Dec. 1828						$30 each	
e pair lock gates	Do do	9th Jan. 1829						$141 44 for whole	
oad bridges on sections 73 and 75	James White	25th Nov. 1828						$15 each	
	Fencing.								
nce on sections Nos. 59 and 60	William Henderson	10th April, 1829						87½ cents per rod	
Do round natural basin on sect. 53	John Keene	28th Oct. do						$15 62½ for whole	
	Repairing Breaches, &c.								
om section 0 to No. 32	John Kerns	10th March, 1829						87½ cents per day each hand, $1 per night, and $1 50 for contr. per day	
Do do 30 to No. 75	Joseph Alexander	17th June, do						Do do do $1 do	
Do do 32 to No. 75	John Keene	7th Dec. 1828						Do do do $1 50 do	terminated
Do aqueduct above Freeport through Buffaloe narrows	James Bole	Do do						Do do do do do	completed
epairing sections No. 6 and 7	James White	27th Nov. do	10			18			
Do do 16, 17, 18 and 19	John Kerns	20th Jan. 1829						$75 31¼	
Do do 18	Do do	1st Nov. 1828	10		10	18			
Do do 35, 36, 37, 38	Horace Smith	9th Jan. 1829						$44 12½	
Do do 36	Joseph Taylor	1st Nov. 1828	10						
Do do 42	N. Waldo	25th do do						$158 25	
Do do 47	Jacob Derry	8th Jan. 1829	11	45	12				
Do do 53	Alexander Stewart	20th June do						87½ cts pr day for each hand employed	
Do do 69 and 76	Smith & Myers	8th Nov. 1828	10			10			
Do do 76 and 77	Joseph Alexander	Do do	10			18			
Do do 65	Isaac Harris	2d April, 1829			20				
Do do 71 and 72	Horace Smith	8th Jan. do	10			18			
Do do 81, 82, 83, 84, 65, 86, 87 and 88	William Lapsley	25th Nov. 1828						$199 60	
Do do 92	Philip Miller	Do do	12½		10				
Do Buffaloe creek aqueduct	James Bole	25th June, 1829						Carpenter $1 per day, contractor $1 50 per day, team $3 per day, timber and iron at estimate of eng.	
	Bridges and Bridge Embankments.								
Bridge on section 0	James Bole	8th April, 1829						8 cents per square foot for timber and $3 per C. for plank	
Do at lock No. 3	William Martin	15th do						$100	
Do and bridge embank't on sect 28	Jacob Stealy	13th do			11			$130	
Do on section No. 73	N. Sackett	5th Nov. 1828						$36 50	
Repairing bridge and bridge embankment on section 91	James Miller	20th Nov. 1828						$11 06	

MISCELLANEOUS.

Kinds of work and where.	Contractor's names.	Date of contract.	Earth.	Rock.	Pud.	Embk't	Whole job.	Completed.
Puddling, &c. Squaw run aqueduct	Norman Sackett	6th Nov. 1828	Cents.	Cents.	Cents.	Cents.	$125	completed
Drain on section 81	Henry Strout	1st do do	10					
Excav. and puddling on sect. 69 and 70	Smith Myers	8th do do	10		10			
Do of rock on section 32	Robert Boyd	9th Jan. 1829		50				
Safety gate on section No. 7	James Bole	1st Nov. 1828					$70	
2 do do do do 81	William Dilworth	5th do do					$66 each	
2 canal flats	James Bole	9th Jan. 1829					$92	
Extra grubbing on section 26	Martin Colp	15th April, do					$10	
Do do at lock 2	William Martin	10th Jan. do					$50	
Hill slip on section No. 11	N. West	6th Nov. 1828	10	50				
Embk't on road on section 75	Joseph Alexander	20th Jan. 1829				20		

WALLS.

Where.	Names of Contractors.	Date of contract.	Perch.	Embk't	Completed.
				Cents.	
Spur walls to culvert on 47	Ira Jenks	8th Nov. 1828	$2 00		completed
Slope wall at locks 3 and 4	John Moore	6th do do	75	14	
Wall at Bull creek aqueduct	Jacob Horton	1st do do	75		Caulking $5 50

13

Schedule

Kinds

Coal bridge

Bridge on s
Bridge ove
Do
Farm brid
Road
Bridge e

Culver
Repai

Pavem
D

Repa

e

No. 14.

SCHEDULE No. 3.

Schedule of contracts entered into on the Kiskiminitas line of the western division, Pennsylvania canal between the 1st November, 1828, and the 15th November, 1829.

Kinds of work, and where.	Names of Contractors.	Date of contract.	Price per cubic yard or perch.						Miscellaneous prices.	Completed.
			Earth.	Slate.	Rock.	Embk't	Pud.	Stone or wall.		
	Bridge and bridge embankments.									
Coal bridge on section No. 15	Samuel Keistler	25 Aug. 1829							Estimate of engineer, and not more than $ 120 00	completed
Bridge on section 18	David Brinneman	10 June							$ 100 00	do
Bridge over guard lock 1	B. Kelsey	4 February							50 00	do
Do do 2	S. Bills	15 April							60 00	do
Farm bridge on section 19	B. Kelsey	25 Nov. 1828							120 00	do
Road do 23, embk't &c.	David Leech	8 April 1829				16		$ 1 02	140 00	do
Bridge embankment on section 4	George D. Foreman	Do				14				do
	Culverts & pavements.									
Culvert, pavement &c. on sect. 75	Thomas Howlan	25 Nov. 1828						1 25	For pavement $ 2 25, perch for culv.	completed
Repairing culvert on section 57	John Chenowith	Do do				est. en.	est. en.	3 50		do
Do do do 20	T. B. Browere	10 March 1829				15		3 00	Extra work, estimate of engineer	do
Do do do 50	John Chenowith	4 February				14	20	3 50		do
Pavement at tow path bridge on 63	John Stoups	15 April						75		do
Do at waste wier on sect. 21	S. L. Jamison	25 Nov. 1828	est en					75		do
	Repairs and breaches.									
Repairing section No. 51	John M'Glade	25 Nov. 1828	10 cts		50	14				completed
Do do 51	John Chenowith	4 Feb 1829				15	20			do
Do do 56	Do do	25 Nov. 1828				15				do
Do do 57	S Bills	Do do				15	20			do
Do do 13	George Hutchinson	Do do				15	20			do
Do do 6, 7. & 8	Do do	20 Jan. 1829	12		45					do
Repairing breaches from sec. 1 to 9	Nicholas Dag	7 Dec. 1828							87½ cts for each hand per day, $1 per night, and 1$ 50 per day for cont.	terminated
Do do do 8 to 23	S. L. Jamison	7 March 1829							Do do do do	
Do do from dam 2 to lock 1	George Hutchinson	25 do do							Do do do do	do
Do sections 6, 7, & 8	Do do	20 January	12		45					completed
Do dam 1	Brown & Kelsey	3 September							$ 160 00	do
	Miscellaneous.									
Waste wier on section No. 56	John Chenowith	26 Nov. 1828						7 00	For paving. $ 1 per perch, extra estimate of engineer	completed
Slip on section 61	John M'Cutcheon	8 April 1829	12		50				Extra work, estimate of engineer	do
Road on do 71 & 73	Andrew Hickenloper	16 April							$ 1 50 per rod	do
Drain on do 51	Daniel Risher	14 March	10						Grubbing 5 00	do
Fence from section 1 to 78	R. Criswell	12 March							$ 1 60 per rod	
Painting G. lock 1 and locks 1, 2 & 3	B. Kelsy	15 April							30 for G. lock, 25 each for 1, 2, 3,	do
G. bank above G. lock 1, sec. 23	Thomas Neel	6 March				37½				do
Embk't adj. west end of aque. at Kisk	Sylvanus Lothrop	8 April				30				do
	Walls.									
Wall and puddling on section No. 1	Le Baron & Lothrop	25 Nov. 1828					13	1 00		do
Wall and protection around lock 1	Gordon & Brown	do do						1 25	For protection 80 cents per perch	do
Spur wall to culvert on section 20	George Hutchinson	do do						2 50	Extra, at estimate of engineer	do
Protection of stone on do 29	John Ralston	do do						75		do

* * *

No. 15.

SCHEDULE No. 4.

Schedule of contracts entered into on the Kiskiminitas and Conemaugh line of the western division, Pennsylvania canal, between the 1st of November, 1828, and the 13th November, 1829.

Kinds of work, and where.	Names of contractors.	Date of contract.	Price per cubic yard or perch.						Miscellaneous prices.	Completed.
			Earth	Slate.	Rock.	Embk't	Pud.	Wall, &c.		
	Sections.									
Completing section No. 79	S. Bills	January 1829	12 cts.		50 cts	15			Estimate of engineer	
Widening bank at 87	James Speer	15 June				15				completed
Altering section 110	Merrick Sawyer	17 do	15				20			do
Excavating 114	Greer & M'Lane	4 April	16		50	12½				do
Towing path 123	John Henry	1 May	12½	40		25				do
	Locks									
Finishing lock No. 10	Jacob Hobaugh	1 March 1829							$ 150 00, extra work estimate eng.	completed
	Lock houses.									
Building lock houses No. 6, 7 & 8	John White	17 Feb. 1829							$ 305 30 for No. 6, 193 50 for No. 7, $ 238 80 for No. 8.	completed
Do do 10	William Hall	17 January							$ 313 57½, extra work estimate of eng.	do
Do do 11 & 12	Peter Keener	17 February							541 25 for No. 11, 346 51 for No. 12	
Do do 13	John Gallagher	1 April							400 00	
Do do 14	William Russell	17 January							206 50 extra work estimate engineer	do
Finishing do 16 & 17	William Buchanan	17 February							303 93 do do do do	do

Kinds of work, and

ing dam

tion of stone, &c.

) cribwork a

kment in and on

ridge on secti
do do
over guard
g path brid
o do
o do
ridge on

o r
ridge
o
ding

Kinds of work, and where.	Names of contractors.	Date of contract.	Price per cubic yard or perch.						Miscellaneous prices.	Completed.
			Earth.	Slate.	Rock.	Embk't	Pud.	Wall		
	Dams.									
hing dam No. 5	S. Bills	February 1829				17½			Filling dam with stone, 30 cents per yard, filling abutments 60 cents per yard, timber 10 cents per foot, plank 4 cents per foot, spikes 12 cents per pound, iron 10 cents per pound, other work at est. of eng.	
ection of stone, &c. at dam 4	Stewart & Neel	9 January	60						Timber 10 cents per foot, extra work, estimate of engineer.	completed
do cribwork at dam 5	Samuel Moorehead	8 April							Timber 10 cents per foot, iron 10cts per pound, extra work est. eng.	do
ankment in and on dam 5	Do do	1 August				25				do
	Bridges.									
bridge on section 60	Thomas Barr	24 October							$ 160 00, extra work estimate eng.	
do do 102	Hugh Curran	25 Nov. 1828							145 00.	do
ge over guard lock 5	Robert Graham	1 April 1829							50 00	do
ing path bridge on section 85	N. Gould	10 June							74 00.	do
Do do do 122	Jones & Brown	19 Nov. 1828						2 00	8cts per foot for tim. 5cts for plank.	do
Do do at locks 12 & 15	Sanger & Ingerson	1 Oct. 1829							75 00, painting 10 00.	do
bridge on section 94	David Anderson	8 April							120 00, embankment and foundation, at estimate of engineer.	do
Do repairs 119	Robert Graham	17 June							$ 54 50.	do
bridge at lock 8	James Anderson	25 Nov. 1828							49 10.	do
Do on section 114	Griffith & Fremo	1 Jan. 1829							150 00.	do
ilding road bridge found. on 114	Do do	10 June							estimate of engineer.	do
	Bridge walls.									
ridge on section No. 102	Hugh Curran	6 Nov. 1828						1 25	Excavation at estimate of engineer.	do
Do do 96	William Hart	Do do						1 25	Do do do do	do
Do do 94	James Anderson	27 do						1 25	Do do do do	do
Do do 95	Case & Carleton	6 do						1 25	Do do do do	do
Do do 96	D. Culbertson	Do do						1 25	Do do do do	do
er protec. and wall at br. on 80	Shoemaker & Miller	25 November						1 25	8 cents per foot for timber, and 30 cents square yard for wall.	do
	Bridge embankment, and foundations, &c.									
Road bridge and embk't on sect. 88	James Speer	1 April 1829							$ 150 00 for bridge, embankment at estimate of engineer.	do
Do do do 114	Grier & M'Lane	1 March				14				do
Do do do 96	David Culbertson	20 Nov. 1828				18			144 00 for bridge.	do
Road bridge embankment on 95	Edward Carleton	1 Jan. 1829				16				do
Do do do 101	Robert Kelly	6 Nov. 1828				16				do
Farm bridge do do 96	D. Culbertson	1 March 1829				25				do
Do do do 116	B. M'Manus	8 April				14			Extra work estimate of engineer.	do
Do do do 103	Hugh Curran	6 Nov. 1828				16				do
Do do do 122	John M'Laughlin	1 do				14				do
Bridge embk't at foot of lock 8, 9	J. Drum	1 Jan. 1829				20				do
Towing path br. embk't on 109	John Wyndrum	1 July				18				do
Bridge foundation on section 116	Robert Thompson	20 June	15					1 25	Pavement $1 per perch, extra work estimate of engineer.	do do
Do do do 120	Joseph Barnes	1 January						1 25	Do 60 cents do do	do
Do do and embk't on 114	Fream & Griffith	Do				14		1 25	Do do do do	do
Do do on section 119	Richard Patton	Do						1 25	Do do do do	do
Do do do 111	John Gallagher	Do	15					1 25	Extra work, at estimate of engineer.	do
	Walls, slope and battered.									
Bridge at lock No. 16	Joseph Barnes	1 April 1829						2 00	Extra work, at estimate of engineer.	do
Do above guard lock 5	Grier & M'Lane	1 July						1 50	Timber 8 cents per foot.	do
Do above and below G. lock 4	Stewart & Neel	5 March						2 00	Extra work, at estimate of eng.	do
Do at foot of lock 6	John Young	1 April						2 00		
Do at end of Con. aqueduct	Brown, Pegan & Co.	1 March						2 50	Do do do do	do
Do above lock 15	B. M'Manus	1 January						2 00		do
Do on section 84	Hugh M'Crea	25 Nov. 1828							14 cents per square yard.	do
Do section 96	D. Culbertson	10 June 1829						1 00	Extra work, at estimate of eng.	do
Do on section 82	William Warren	25 Nov. 1828							30 cents per square yard.	do
Do above and below lock 14	George W. Trout	8 April 1829						2 00	Extra work at estimate of eng.	do
Do between locks 12 & 13	Sanger & Ingerson	9 January						1 00	Do do do do	do
Do at head of guard lock 3	S. R. Richards	25 Nov. 1828						2 75		
Do on section 82	Thomas Howlan	1 Jan. 1829						1 00		do
Do at head of lock 9	William Idings	10 June						2 00	Do do do do	
Do on section 81	Coulter & Bachelor	25 Nov. 1828							30 cents per square yard.	do
Do do 101	Robert Kelly	1 March 1829						1 25		do
Do at head of lock 6	N. Gould	1 April						2 00		do
Do around lower side of lock 5	Do	Do						1 25		do
Do between Con. aque. and tunnel	Brown, Pegan & Co.	1 March						6 00	Extra work at estimate of eng.	do
Do at head of lock 11	Hugh Curran	Do						2 00		do
Do at head of guard lock 5	S. Bills	1 April						2 00	Do do do do	do
Wall with wooden found. adj. lock 5	Harris, Gould, & Co.	7 January						2 00	Timber 5 cents per foot, extra work estimate of engineer.	do
Do do do do 7	Do do do	27 Dec. 1828						2 25	Timber 8 cts per foot, plank 5 cts per foot, and extra work est. eng.	do
Wooden found. for wall adj. lock 10	Kenny & Roberts	27 Nov.							Do do do do	do
	Hill slips.									
On section No. 87	James Speer	25 Nov. 1828	12¼		50					do
Do 98	Samuel Love	Do	12¼		50				Extra work at estimate of engineer.	do
Do 97	Stewart & Mountain	6 Do	12½		50				Do do do do	do
Do 92	Joseph Black	1 Jan. 1829	12½		50					
Do 93	Cochran & Duncan	9 Do	12¼		50				Do do do do	do
Do 94	Johnston & Carleton	1 March	12½		50				Do do do do	do
Do 112	Brown & Sawyer	1 January	15		50				Do do do do	do
Do 111	J. M'Dermott	15 March	14		50				Do do do do	do
Do 104	Stewarts & Neel	1 do	12½		50		50		Do do do do	do
	Puddling.									
On section No. 89	M'Farland & Dickey	25 Nov. 1828					20			do
Do 90	Jacob Drum	5 March 1829					25		Do do do do	do
Do 101	William Bradley	1 March					20		Do do do do	do
Pud. and excav. below bot. on 82 & 93	Patrick M'Laughlin	1 April		40			est. en.			do
Do do do 109	John Wyndrum	1 March			60		25			do
Do do do 111	Do do	8 April		30			20			do
Do do do 116	Bernard M'Manus	25 Nov. 1828			60		20			do

Kin	rub.	Miscellaneous Prices.	Completed.
Embankm			
Do			
Do			
Do			
Guard bar			
Excavatio of Cone			
Excavatio			
On sectio 90, 9			
On secti			
Do			
Do			
Do			
On se 11			
On o			
On			

Kinds of work, and where.	Names of Contractors.	Date of contract.	Price per cubic yard and perch					Grub.	Miscellaneous Prices.	Completed.
			Earth	Rock.	Embk't	Pud.	Wall.			
	Excavation and embankments.									
Embankment &c. at lock No. 5	N. Gould	10 June 1829			20				Extra work at estimate of engineer	completed
Do at G. lock 3	S. Bills	Do do			30				Do do do do	do
Do at do 5	John M'Laughlin	8 April			25					do
Do in and on dam 4	Stewarts & Neel	1 August			25					do
Guard bank at lock 4	Do do	7 February			20					do
Excavation and embankment at end of Conemaugh aqueduct	Brown, Pegan & Co.	1 March	12½	50	15				Do do do do	do
Excavation below guard lock 5	John M'Laughlin	8 April	12½						Do do do do	do
	Fencing.									
On sections 79, 80, 82, 83, 84, 86, 89, 90, 96 to 103 inclusive	Robert Criswell	25 Nov. 1828							93¾ cents per rod	
On section No. 88	James Speer	1 April 1829							$ 1 00 per rod	
Do 91	James Anderson	10 June							87½ cents do	
Do 94	William Hart	20 February							1 00 do	
Do 95	John Getty	Do do							1 00 do	
On section 107, 108, 109, 110, 111, 112, 113, 114, and 115	John Gallagher	4 March							90 cents do	
On section 116, 117, 118, and part of 115	B. M'Manus	8 April							93 do do	
On section 116 to 125	Robert Graham	25 Nov. 1828							87½ do do	
	Extra Grubbing.									
On section No. 92	Joseph Black	25 Nov. 1828						$ 75		do
Do 109	Wyndrum & M'Kee	9 Jan. 1829						60		do
Do 110	John Gallagher	10 do do						est. en.		do
Do 120	Joseph Barnes	1 Dec. 1828						20		do
	Waste Wiers.									
On Section No. 85	N. Gould	25 Nov. 1828					6 50		Pavement $ 1 25 per perch	do
Do 90	Thomas Howlan	10 June 1829					6 50		extra work, at estimate of engineer	do
Do 93	Edward Carleton	1 March					6 00		Pavement 1 00 per perch do	do
Do 104	Stewarts & Neel	Do do					6 00		Do do do do	do
Do 109	Sanger & Ingerson	7 August							154 93	do
Do 114	Crayton & M'Carthy	1 January					6 00		1 00 per perch for pavement, extra work estimate of engineer	do
Do 120	Do do	Do do					6 00		Do do do do	do
Protec. of stone at waste wiers on 119	Brown & Daily	17 June							$ 40 32	do
	Repairs.									
On sections 80, 81, 82, 83, 84	Armstrong & M'Kee	17 June							301 25	do
Between dams 2 & 3	John Johnston	8 August							40 68	do
West end of Conemaugh aqueduct	David Leech	27 October							27 37½	do
From section No. 104 to No. 115	John Wyndrum	1 July							87½ cents per day for each hand, 1 per night, 1 50 per day for super. miscellaneous 29 47	
Do 116 to Blairsville	M. Daily	Do do							Do do flat 50cts per day	
On section 90	S. Bills	Do do			20					do
Repairing section 85, and pumping at lock No. 5	N. Gould	10 June							1 per day for each band employed	do
	Miscellaneous.									
Pumping at G. lock 3 & lift lock 4	S. Bills	10 June							Do do do do	do
Pavement on section No. 124	Grier & M'Lane	1 January					1 00		Extra work at estimate of engineer	do
Do do 125	Blakely & Lewis	1 Dec. 1828					1 00		Do do do do	do
Road on section 114	S. Griffith	1 July 1829							2 00 per rod	do
Painting 3 bridges and lock 9, section 88, 90, 91	J. Drum	10 June							15 00 for each bridge, 30 for lock	do
Railing on tow path section 123	Wm. Bradley	1 July							20 50	do
Sheet piling at guard lock 5	Moorehead & Bishop	25 Nov. 1828							4 cents per foot for 2 inch plank, 2 cents for 1 inch plank, extra work at estimate of engineer	do
Damages on 96	David Culbertson	1 July 1829							20 00	do
Painting locks 12 & 13	Sanger & Ingerson	1 October							50 00	do

No. 16.

Schedule No. 5.

Schedule of contracts entered into on the Ligonier line of the western division of the Pennsylvania canal, between the 10th November, 1828, and the 15th November, 1829.

Kinds of work and where.		Names of contractors by whom work was forfeited.	Names of present contrac.	Date of contract.	Grubbing.	Prices per cubic yard and perch.					
						Earth.	Slate.	Rock.	Embk't	Pud.	Wall.
			Sections.								
	No 6	Bartley & Welsh	Christopher Hill	17th June, 1829		9	est.en.	est.en	11		
Towing path	11	M'Bride & Co.	Grier & M'Lane	9th Jan. do	$295	7	20	42	9		
Do	13	Meehan & Beehan	David Anderson	20th Feb. do	Est. of eng.	7¼	25	43	9		
	18	Alexander M'Farland	S. R. Richards	18th May, do	Do do	11	33	46	12¼	E. E.	E. E.
	19	Do do	Polly & Johnston	20th do do		11	33	46	15		
	22	George Hotchinson	N. West	20th April, do	$120	8	25	39	9		
	28	D. Gilmartin	M'Bride & M'Laughlin	2d do do	E. E.	10	35	45	10		
	34	Gallagher & Co.	Nicholas Day	20th May, do	$160	12	33	50	15	E. E.	E. E.
	35	Lang & Richards	Edmund Burk	16th do do	$158	9¼	30	45	12		
	38	Furbish & Burk	Carley & Marlett	20th Feb. do	$60	9	30	39	12		
	44	Smith & Gallagher	Thomas Reilly	2d April, do		12	29	40	15		
Towing path	53	Curran & Co.	Charles Kelly & Co.	15th do do	$340	9	23	45	9		

Price of Grubbing, Puddling, Excavation and Embankment.

Nos.

stimate of Engineer

Schedule No. 5.—Continued.

LOCKS.

Numbers.	Contractor's Names.	Date of contract.	Masonry per perch.	Price of Grubbing, Puddling, Excavation and Embankment.
Nos. 1 and 2	Johnston & Jones	19th Feb. 1829	$4 90	Estimate of Engineer
3	P. Ingerson	6th do do	4 62½	
4	J. & J. Atkinson	4th April, do	4 75	
5	Moore & M'Cartney	5th Jan. do	4 25	Do
6	Woodworth & Martin	17th do do	4 62½	Do
7	Brown & Keely	16th Feb. do	4 40	Do
8 and 9	Sommers & Morara	19th Jan. do	4 50	Do
10, 11 and 12	Smith, Gamble & Co.	20th do do	4 50	Do
13	N. West	15th Feb. do	4 25	Do
16	Smith, Gamble & Co.	do do	4 50	Do
17	Do do	do do	5 25	Do
18 and 19	Johnston & Jones	1st July, do	5 20	Do
20	R. Sanderson & Co.	15th May, do	5 00	Do
23	J. Finlon & Co.	17th June, do	4 50	Excavation 20 ct. per cubic yard, grubbing $100 E. S. E
24	Woodworth & Love	15th May, do	5 25	Estimate of Engineer
25	Gould & Kelly	17th Jan. do	4 12½	
26	Wm. M. Martin & Co.	18th Feb. do	4 40	
27	Bole & Chamberlain	do do	4 00	

DAM SECTIONS.

Numbers.	Contractor's Names.	Date of contract.	Grubbing.	Earth.	Rock.	Slate.	Embk't	Puddling.
1	William P. Sterrett	15th April, 1829	$8 per chain	12½	45	25	12½	
2	D. Sanger	19th Feb. do	8 do	10	45	25	12	20
3	G. Sutton	Do do	22 50					
4	Merrill & Addison	15th April, do	9 per chain					

GUARD LOCKS.

os.	Contractor's Names.	Date of contract.	Price per perch	Excavation, &c.
1	Mulhollen & Mahon	19th Feb. 1829	$4 00	Est. of engin.
2	D. Sanger	Do do	4 20	Do do
3	Bole & Chamberlain	19th do	4 10	Do do

GUARD LOCK SECTIONS.

Nos.	Contractor's name.	Date of contract.	Grub.	Earth.	Slate	Rock.	Embk't
2.	D. Sanger	10th April, 1829	$8 pr. ch.	12½	25	45	12½

LOCK SECTIONS.

Numbers.	Contractor's Names.	Date of contract.	Grubbing.	Earth.	Slate.	Rock.	Embk't.	Pud.	Wall.
1 and 2	Johnston & Jones	19th Feb. 1829	Est. of Engineer.	10	25	45	12½	20	-
3	P. Ingerson	6th do do	$7 per chain.	10	25	45	12	20	
5	Moore & M'Cartney	5th Jan. do	E. E.	10	25	45	12½	20	
6	Woodworth & Martin	17th do do	$7 per chain	9	25	45	20		
7	Brown & Keely	16th Feb. do	E. E.	10	27	45	12½	20	
8 and 9	Sommers & Morara	19th Jan. do	Do	10	18	45	12½	20	
10, 11 and 12	Smith, Gamble & Co.	20th do do	Do	9	20	45	12½		
13	N. West	15th Feb. do	$8 per chain	12½	45	25	12½		
16	Smith, Gamble & Co.	20th Jan. do	E. E.	9	20	45	12½		
17	Do do	16th May, do	Do	12½	37½	62½	18		
18	Johnston & Jones	1st July, do	Do	12	E. E	E. E.	15	E. E.	
19	Do do	Do do	Do	12	do	do	15		
20	John M'Mahon	20th June, do	Do	12	55	do			
25	Gould & Kelly	17th Jan. do	Do	9	25	40	11		
26	Wm. M. Martin	18th Feb. do	Do	9	25	45	12½	20	
27	Bole & Chamberlain	Do do	$125	10	26	62	17	25	75 cents per perch

ROADS.

Where	Names of Contractors.	Date of contract.	Price per perch.
On sec. No. 8	Kenny & Cassidy	9th Jan. 1829	$1 40
9	J & D M'Cartney	3d Dec. 1828	3 50
11	Grier & Co.	9th Jan. 1829	2 40
12	Henry Benn	Do do	2 25
13	Mechan & Beehan	3d Dec. 1828	3 00
14	Luke Hulett	Do do	2 50
15	M'Kinstry & Lardin	Do do	2 50
16,17,18 & 19	Alex. M'Farland	Do do	1 80
28	M'Bride & M'Laughlin	4th July, 1829	5 00
38	Carloy & Marlott	17th June, do	6 50
41, 42, 43	Robert Sutton	3d Dec. do	1 50

PIER HEADS.

Where.	Contractor's Names.	Date of contract.	Price per perch	Miscellaneous.
At dam No. 1	Wm. P. Sterrett	15th Aug. 1829	$1 62½	
2	D. Sanger	Do do	1 62½	

CULVERTS.

Where.	Contractor's Names.	Date of contract.	Price per perch	Miscellaneous.
On sec. No. 38	Carley & Marlett	June 30, 1829	$3 50	Estimate of Engineer
45	Riley & Kennedy	Feb. 18 do	3 00	Do do
57	Wm. M. Martin	Do do	3 00	Do do

MISCELLANEOUS.

Where.	Contractor's Names.	Date of contract.	Price per perch	Miscellaneous.
Drain on sec. No. 57	N. Rafferty	17th June, 1829	$30 20	
Clearing drift on sec. 54	Thos. Riley	20th April, do	30 00	

AQUEDUCTS OF STONE.

Where.	Contractor's Names.	Date of contract.	Price per perch	Miscellaneous Prices.
At Lockport, with lock 14 combined	Sylvanus Lothorp	6th Jan. 1829	$6 00	Wrought iron 14 cents per lb. excavation 16 cents per cubic yard, slate 30 cts. per do. rock 60 cents per do. coffer dams, &c. at est of engineer.
Over Tubmill creek	Davis, Brown & Purse	25th Nov. 1828	6 00	Extra work at estimate of engineer

esti

he amount and value of what is now done,

as e

ne, 1 e as estimated when the following sections shall be com-

Engin de by Sylvester Welsh, Engineer.

ards of bk't.	vation ock, rds.	Yards of Embk't.	Yards of Wall.	Yards of Pud.	Total amount of whole when finished.
000	,205			308	$4000 77
	697	21,750			3353 16
00	,254				4054 50
	990	1100			2760 96
	100	3500			1815 00
	480	702			2050 06
	910				2488 28
	019			4620	7751 65
	350	1000			1622 50
00	488	2088			1446 93
	645	2260			2479 39
73	300	1680			3360 10
	551	2857		2340	4052 85
	524	3380	1150	2400	11,311 72
	17	1800		3200	11,275 45
50	80	11,742		1700	6229 54
	88	258			3525 33
	95				3206 18
	87	2822			8915 50
26	62	1624			2280 44
	26	7904			3020 37
149	68	66,467	1150	14,568	$86,000 68

Table No. 2.

Comparative statement showing the amount and value of work originally estimated to be required on 21 sections of the Ligonier line, western division Pennsylvania canal—the amount and value of what is now done, &c. on the same.

Original estimate of the quantity of work to be done on the following sections (Ligonier line) by James D. Harris, Engineer, with the valuations added by him after the contracts were made.							Quantitity and value of work as estimated to have been done prior to the 20th of June, 1829, taken under the direction of James D. Harris, Engineer.						Quantity and value of work estimated to have been done up to the 20th of November, 1829, taken under Sylvester Welsh, Engineer.							Total quantity of work and value as estimated when the following sections shall be completed, made by Sylvester Welsh, Engineer.						
Nos. of sect.	Grub. chains, &c.	Excav. of earth, yards,	Excav. of Rock, yards.	Yards of Embk't.	Yards of Wall.	Total amount of Estimate.	Grub. chains, &c.	Excav. of Earth yards.	Excav. of Rock, yards.	Yards of Embk't.	Yards of Wall.	Amount of Estimate.	Grub. chains.	Excav. of Earth, yards.	Excav. of Rock, yards.	Yards of Embk't.	Yards of Wall.	Yards of Pud.	Amount of Estimate.	Grubbing chains, &c.	Excavation of Earth, yards.	Excavation of Rock, yards.	Yards of Embk't.	Yards of Wall.	Yards of Pud.	Total amount of whole when finished.
3	25¼	14,000	2173			\$2105 55	250¼	1000	8000			\$2305 00	25¼	4320	14,205			308	\$4000 77	225 00	4320	14,205			308	\$4000 77
5	6	8094	none	18,984	none	2135 00	6		5060	12,000		2065 00	\$50	1623	6250	17,935			2950 91	50 00	1623	6697	21,750			3353 16
8	24	10,460	1000			1242 20	24	1620	2950			1195 90	24 ch	5237	9272				3345 45	200 00	6768	11,254				4054 50
11	24	3500	1800	3000		1564 19	19	2250	3900	300		1418 90	24	3512	6990	1100			2760 96	295 00	3512	6990	1100			2760 96
13	36	5500	500	4000		987 50	16	1400	3050			1105 50	36	5000	3100	3500			1815 00	224 00	5000	3100	3500			1815 00
14	33	6000	500	3000		1180 00	33	2600	9800			1523 00	33	6288	4480	702			2050 06	250 00	6288	4480	702			2050 06
15	\$300	5500	1000	3000		1400 00	\$300	2600	3180			1380 00	\$300	8551	4910				2488 28	300 00	8551	4910				2488 28
17	30ch	4760	2380	12,000		2127 20	26 ch.		9240			2877 00	30 ch.	5672	19,937				5944 19	120 00	9370	22,019			4620	7751 65
20	24	4074		3486		773 92	24	3400	1121			816 56		6450	2250				1440 50	175 00	7250	2350	1000			1622 50
26	20½	9372		300		885 90	20½	7690	795			1000 30	24½	7860⅓	1488	2088⅓			1446 93	150 00	7860	1488	2088			1446 93
31	9	13,944		3000		1615 52	9	9000	2307	500		1740 62½	9	10,330	3575	2340			2455 09	200 00	10,445	3645	2260			2479 39
37	24	13,944	none	none		1195 80	24	7000	3500			1741 00	24	10,460	6800	800			3212 50	140 00	11,020	6800	1680			3360 10
40	30	6640		15,334		2417 94	26¼	8280	6841	173		2917 83	30	8651	7650	2750			3479 48	200 00	10,991	7651	2857		2340	4052 85
41	29	2068	4136	27,720	1678	5326 18	25⅜	1640	10,095			3760 11	29	7720	24,474	1150			9303 50	175 00	11,592	25,624	3380	1150	2400	11,311 72
42	27	7425	7425	36,640	2517	7144 82½	27	6467	28,427			9143 54								200 00	14,407	30,917	1800		3200	11,275 45
43	30	10,364	3454	12,282	470	3441 93½	30	5699	9690			3340 14	30	6420	13,080	9150		220	5568 22½	100 00	9695	13,080	11,742		1700	6229 54
45	36	10,224				1117 92	36	14,228	1861	150		2225 86	36	13,437	5588	258			3525 33	300 00	13,437	5588	258			3525 33
46	33	7872	1500			1484 76	29 7/10	2575	3384			1546 04	33	5375	6681				2859 13	300 00	5198	8095				3206 38
48	36	4000	3000	1500		1600 00	32 4/10	1145	4612			1680 77	36	1145	10,312	1376			3531 07½	250 00	1145	11,387	2822			3915 50
50	\$200	4500	1500	1000		1272 50	\$180	967	2535			1157 69½	\$200	3036	4762	1624			2280 44	200 00	3036	4762	1624			2280 44
52	36ch	6000	1000			1325 00	32 4/10	2113	992	2326		1187 06	36 ch	3260	2366	7145			2726 37½	410 00	3260	2826	7904			3020 37
		158,241	31,368	146,246		\$42,353 65		81,614	121,140	15,449		\$46,127 83		124,347	158,171	51,918			\$67,184 19	\$4462 00	154,768	187,868	66,467	1150	14,568	\$86,000 68

E.

Report of S. Welsh, Engineer, on work done by M'Avey, and Co. on tunnel job, &c. Pittsburg.

Pittsburg, November 30, 1829.

To James S. Stevenson, Esq.
Acting Commissioner, W. D. Penna. canal.

SIR, Pursuant to your instructions, I have examined the canal through this city, with a view to determine the amount and value of work done by James M'Avey, Daniel Moloy and Co. under their original contract.

Not having examined the ground through which the canal passes, or the work during its progress, it is not possible for me to make an accurate measurement of the number of cubic yards removed, or of the whole quantity required to form the canal. But taking for my guide, the estimates of quantity by the former engineers, and the estimate of work remaining to be done on the 18th of June last, (the date on which the contract was abandoned,) by the present resident assistant engineer. I am of opinion that the sum stated in the estimate of Mr. James D. Harris, dated May 16th, 1829, viz: $37,000, is a fair value of the work done and materials furnished on the ground, at the contract price. Although the expense of executing the work, may have exceeded this amount.

The stone that were prepared in the quarry, at the distance of about eleven miles from the work, appear not to have been included in the estimate of Mr. Harris. The value of these to the work would have been about $300. The price fixed for work added by the engineer to the contract, appears to me in some instances to be too low. The lock to which the addition was made, has its foundation below the surface of the water of the Monongahela river. The increased length and width of the pit, and the consequent encrease of expense in keeping out the water, ought to be allowed in the additional masonry. The tumbling dam at the south eastern end of the tunnel is also estimated at a low price.

The estimate, with the alterations proposed, will be as follows:

Proportion of contract done,		$37,000 00
Temporary bridges, centering for tunnel, &c.		286 87½
261½ perches of masonry, at $4 00,		1,046 00
Stone at the quarry,		300 00
Tumbling Dam.		
Excavation, 300 yards, at 15 cts. per yard,	$45 00	
Embankment, 400 do at 12½ ditto.	50 00	
Stone work, 298½ perches at 1 00 ditto.	298 50	
Sheetpiling, 200 feet at 5 cts. per foot,	10 00	
		403 00
Water lime, 3080 bushels at 25 cts.		770 00
		$39,805 87½

Yours, very respectfully,
SYLVESTER WELSH, *Engineer.*

No. 1.

JUNIATA DIVISION.

JUNIATA CANAL OFFICE,
Lewistown, December 5th, 1829.

To the Board of Canal Commissioners.

GENTLEMEN,

The accompanying report of Alexander C. Twining, the engineer on the ninety miles of canal entrusted to my care, which is marked A, will supersede the necessity of my giving you a detailed history of the operations on the Juniata division of the Pennsylvania canal, for the last year. I will therefore confine this report to a few general observations.

The River Trade.

In compliance with the provision of law, that prohibits the obstruction of rivers by dams, unless a passage equally safe be provided, there was a river lock of 17 feet wide by 90 feet long, within the chamber, built at each of the two dams that were erected below Lewistown. These locks were completed in the fall of 1828; but in March last, the unusually thick ice of the preceding winter was broken up suddenly by a freshet, which injured both locks so seriously as to render them impassable, and made it necessary to rebuild the one at North's island.

The repairs necessary to the dam and river lock at the head of the Long narrows were put under a good contractor, and have been effectually repaired and strengthened; and the lock has been used by the boatmen since early in last October. As soon as the spring floods had subsided sufficiently to ascertain the extent of injury done by the ice, and it was discovered that a new lock would be required at North's island, proposals were received for building it; and it was assigned to the *lowest* bidder, who was well recommended as an efficient contractor. The contract with him is dated April 28, 1829: but, on the 27th of September following, his contrct was abandoned; as the palpable neglect to fulfil his engagements had jeopardized the interests of four counties, and it was consigned to other men; since which time it has advanced with rapidity, and will be entirely completed within a few days, so that those citizens who may prefer the old method of floating to market, may henceforward rely with the utmost confidence on an uninterrupted river navigation.

Lower line, 45 miles.

The protracted severity of last winter, and the embarrassments of the state tracasury, during the summer, have tended to postpone the completion of the canal for public use, but I have grea pleasure in stating, that 31 miles of it has been navigated by boats laden with goods direct from Philadelphia, and the remaining distance has had the water introduced into it, throughout, except half a mile at the lower end. For more minute information respecting this part of the line, I refer the board to a report made to me on the 21st ultimo, by General Mitchell, the supervisor, marked B. in which an account is given of the repairs which have been made, and of those that are yet deemed necessary.

The large aqueduct over the Juniata at Duncan's island was let to Moore & Winslow, on the 11th of June, 1828, being as soon after the final decision of the canal board upon its location, as the time required by law for advertising would admit. And in their contract, they were bound with sureties, in a penalty of fifty thousand dollars, to complete it "on or before the first day of August 1829." To expedite which, every facility was given to the contractors which the attention of the engineer, and *nine* several current payments on estimates could afford; and to enable them to prosecute the job vigorously, a greater proportion of the estimates was paid to them than the terms of their contract required. But, notwithstanding the prompt and cheerful aid that was always readily afforded them, they abandoned the contract on the 10th of August last, having completed only three sevenths of the whole work required. The work remaining to be done was immediately relet to substantial and experienced contractors, who are to have it ready for public use by the middle of next April. The accompanying report of the engineer marked C. shows, that during the three months which have elapsed since the present contractors have taken the job, one half of their work is done, and the other moiety can be readily completed within the four months which is allowed them for finishing.

Should the navigation of the canals open in the spring before the aqueduct at Duncan's island is finished, there will necessarily be a transshipment and about half a mile of portage, until it is completed; from which time a boat leaving Philadelphia may proceed uninterruptedly 220 miles towards Pittsburgh; leaving 112 miles of hauling by land between these cities.

In finishing off the lower line, many small jobs occured which could not conveniently be included in any regular contract; partly as incidental appendags to the completion of the canal, and partly as repairs. These were performed by jobbing contractors and assistant supervisors, at a per diem allowance for their own wages and the necessary expenses or actual cost for men, tools, &c. to be rendered under oath and taxed by the engineer. The amount expended in this way is $8,126 51, as will appear in detail on the list marked D.

The aggregate estimates of the Engineer for work done and settled on the lower line, per his report, amounts to $991,899 56.—

The work done, but not yet finally estimated, amounts to $25,300 00; and the work not yet finished, including the big aqueduct and repairs, is conputed to cost $73,805 00.

Upper line, 45 miles.

The want of funds, the supply of which became irregular, in May last, and ceased altogether in September, has retarded the completion of the lower line, and greatly paralized the efforts of the contractors on the upper line. But a large majority of them have continued to prosecute their contracts, notwithstanding the pecuniary embarrassments under which they laboured. These embarrassments have produced great irregularity in the prosecution of the work, as many of the easy jobs are completed, while but little advance has as yet been made on some that are much more difficult; contractors could not in justice be forced to prosecute their work without money to pay them. But, with a supply of funds, the whole work can be finished before next fall, so as to be ready for public use, to the borough of Huntingdon, early in the spring of 1831.

The amount of estimates for work done between Lewistown and Huntingdon is $466,181 41; and the work yet to be done is calculated to cost $619,774 55.

The strength of the work on the lower line, which has been tested by water, has generally exceeded the expectations of those concerned in its construction; and the work on the upper line is still of a more substantial character. Justice requires me to state, that the style of engineering on the new line is greatly superior to that on the old, although I believe that the work on that line will compare advantageously with other canals of equal difficulty.

Much difficulty and perplexity occurred in constructing the canal through Huntingdon, and considerable damages have been paid to the citizens, many of whom have shewn a laudable forbearance and even public spirit, under such irritating circumstances as the removal of their out buildings, wells, gardens, &c. which the uncommon formation of a town without alleys rendered doubly vexatious.

By table E. accompanying this report, it will be seen, that very few jobs have had to be relet during the past year. A depreciation in the price of living and the wages of labor has rendered those contracts profitable, which, 13 months since, were obtained through great competition. It is therefore confidently believed, that the remaining work will be accomplished by the present contractors with but few exceptions.

Tables F. and G. will shew the cost of each job on the lower line, by whom worked, and how much has been paid thereon. By these tables there appears to be $945,989 02 paid, and $37,784 03 retained as back per centage or forfeited by abandonment, which together with $8,126 51, as per table D. makes altogether $991,899 56, as stated in the report of the engineer. There is, however, a portion of the sum marked as paid, for which certificates have been issued to contractors, and which have yet to be redeemed.

The tables attached to the engineers report of the Huntingdon line, shew the aggregate cost of the sections to be $730,338 86; and the cost of the incidental work is estimated at $355,617 10; making the computed cost of the whole line $1,085,955 96:

Of which the work that is done on the sections amounts to	$354,047 95	
Ditto. Incidental work,	112,133 46	
		$466,181 41
The work yet to be done on the sections is estimated at	$376,290 91	
Ditto. Incidental work,	243,483 64	
		619,774 55
Total cost,		$1,085,955 96

A list of all the persons employed in the canal office, the engineer corps and the supervisor of the line, is given in table H. together with the date of their appointments, the term of their service and the rate of compensation. By which it appears that the amount of expenses for their several services for the last year has been $21,681,50. This sum divided by 90, the number of miles over which it was distributed, gives $240 90½ per mile, as the expense for engineering and superintendence. The present organization of the engineer corps, supervisors, collector and lock keepers, is given in table I.

Table K. contains a list of damages that have been adjusted; of which $6,729 25 has been paid, and agreements have been made to the amount of $2,164 09, that is yet to pay. I have caused a survey of the canal between Lewistown and Duncan's island to be made and plotted, in connection with the tracts of land through which it passes, with a view to a final adjustment of all just claims for damages. It is respectfully suggested to the board, whether it should not be recommended to the legislature, to erect a board of appraisers of damages for the whole system of canals and rail roads throughout the commonwealth, as a tribunal much better qualified to do justice to the state, and render satisfaction to aggrieved citizens, than the acting commissioners and superintendents can be; inasmuch as the latter are placed too strongly in contact with property holders, in the construction of the public improvements, to inspire a general confidence in their impartiality.

Since the funds available for the Juniata line have been exhausted, there have been certificates issued to contractors on estimates for work done, to the amount of $241,368 61; which are now outstanding and unpaid, as will appear by a list furnished the Auditor General, of this date.

An inspection of the tables transmitted herewith, will show that the actual cost of the line between Duncan's island and Huntingdon will stand thus :

Cost of the first 45 miles,	$1,091,004 56	
Cost of the last 45 miles,	1,085,955 96	
		$2,176,960 52
Col. Clinton's estimate of the cost was :		
For the old line,	$851,279 00	
For the new line,	890,229 00	
		1,741,508 00
Cost, over the estimate,		$435,452 52

The additional expense has been caused by alterations of roads, fences, and many small jobs consequent upon the completion of the canal, which could not be foreseen or estimated. By changes in the location of the line; by alterations in plans of work; by sickness on the Juniata; by the enhanced price of labour, provisions and horse-feed; by the ice flood of last spring; and by the unprecedented quantity of public work in progress throughout the United States. While a few contractors, upon the old line, may have realized considerable profit upon their jobs, yet it is a fact that many worthy men on that line have spent their time and money, not only without profit, but at a positive loss. But while I sympathise with *them* for their losses, it is a source of consolation to know, that the public funds have not been wasted upon *canal speculators*; for, on the Juniata, that description of contractors have met with neither encouragement or success.

Before closing this report, I wish to draw the attention of the canal board to the water power that has been and will be created by the dams on the Juniata. Some provision should be made by the legislature for disposing of this power.

All of which is respectfully submitted.

JAMES CLARKE, *Acting Commissioner.*

N. B. Table L. gives a summary view of the whole cost (including every thing which is already expended or is estimated as yet to be done), on the Juniata division of the Pennsylvania canal. By statement 1, of this table, it appears that the entire cost of the 90 miles of canal between Duncan's island and Huntingdon, will be $2,254,855 00, exclusive of damages yet to be settled, which, from their nature, cannot be estimated. Statement 2, shews that of the above sum, $1,145,396 59 is paid, and $1,109,458 41 is yet to pay. And, by statement 3, it will be seen how the funds that I have drawn from the treasury have been expended.

JAMES CLARKE, *Acting Commissioner.*

No. 2.

DOCUMENT A.

To James Clarke, Esquire, Acting Commissioner of the Juniata Division, Pennsylvania Canal.

SIR,

I have the honor to enclose the following report, to the board of canal commissioners.

Gentlemen—Since the early part of June last, at which time the responsibility of conducting the Juniata line was very unexpectedly thrown upon me, my own personal attention has been mainly devoted to the completion of the works from Lewistown to the mouth of the river. In the accomplishment of this duty, the chief embarrassments have arisen from the large amount of newly finished contracts, requiring immediate settlement, and from the deficiency of information, in many important cases, respecting the nature and amount of work done. This latter circumstance need not have been mentioned, if it had not been of such real consequence as could not, without imprudence, have been passed with entire silence. That part of the remark which applies to the amount of contracts, embraces three fourths of the whole line; for, though, at the time of my entering upon it, the mass of work was done, yet only a part of the heavy contracts had been completed and taken up, so that the amount of final certificates, both for sections and incidental works, was not quite one fourth of the whole. To add to this, out of the number of assistants on the whole forty-five miles, under whose superintendence the work had been carried on, there remained but one, and he was soon after removed by death. The difficulties attendant upon making the final settlements upon so great an extent of line, just on the eve of completion, called for much caution as well as diligence on the part of those to whose care it had been committed; and it was thought better, by a deliberate examination of all claims, to encounter delay, than by a more rapid proceeding to incur the risk either of injustice to the contractor or injury to the state. The final settlements are now, with a few exceptions, made; and although it might be harzardous to affirm, that every amount and proportion has been exactly ascertained, yet the engineer has the satisfaction of believing that small unavoidable errors have generally been in the contractors favor; and that wherever considerable claims have been either allowed or rejected, it has beed upon clear and certain grounds, although some times after laborious investigations.

With respect to another part of my duty, that of completing the works, the state of the line is known to the board. All parts of it, down to the aqueduct, essential to actual navigation, were completed before November; and the canal itself was navigable.

There remain three sections yet incomplete; together with two or three others, in which the water has laid open defects; and some items of incidental work, that will be noticed again in the estimate which forms a part of this report.

Concerning the river navigation, it appeared for a long time doubtful, in the eyes of the public, whether the lock, at the Millerstown dam, could be thown open in time for produce to descend in the spring; but since the abandonment (by the commissioner) of the former contract, the lock has proceeded with rapidity, and little will remain, after the present week, but the hanging of the gates and planking of the sides. At the other river lock where injuries had also been sustained from the ice of last spring, the repairs have been completed which had been begun; the works raised and strengthened, and the abutments of the dam rebuilt in a very substantial manner.

The north branch of the dam, connected with the lock first mentioned, was discovered towards the latter part of the summer to have received injury itself, from the spring floods: The rock below, being of a soft texture, had been worn down to a depth of six feet, and the dam for two hundred feet in length had settled and moved. Both branches were found also leaking badly, from a defficiency of gravel. To avoid the danger from succeeding freshets, a new gravelling has been resorted to; and the north branch made secure by a parallel line of cribs a few feet below, resting in the hollow cut out by the ice, then filled and surrounded with stone. A flat surface is thus prepared for the reception of timbers extending, side by side, thirty feet down the stream, and bolted both to the cribs and the dam. The south branch of this work yet appears firm, but the guard lock is insufficient, and the walls must be removed

The entrance of water into the canal, tested the strength of its banks, and proved them good. The narrows below Lewistown and Mifflin, especially, proved generally better than the best hopes of those interested. A few failures on the line, which have taken place, would not be worth mentioning, but for the interest and claim which the board possess, to be minutely informed concerning the success of their works. Two piers of Jack's creek aqueduct, (near Lewistown) were undermined in part by the stream, and fell. On two sections also, a mile below, the vertical wall which supported the embankment gave way, for a chain on each section. Below Thompsonstown, and on the last level of the canal, breaches took place soon after the admission of the water, one from the failure of a culvert, and two from the failure of puddling around them. At the ends of the small aqueducts, the puddling has proved insufficient and must be renewed, upon a different plan.

That division of the canal which belongs to the contracts of 1828, lies above Lewistown, and is more difficult in its nature than the part below, which is completed. It will be seen from the estimates for this part of the work, that a considerable amount, compared with the whole, is already done. Constant efforts have been made that the character of the work shall not fall below that which the specifications call for. The locks upon this line are planned of wood, in conpliance with the directions of the board; the frame being supported by walls of dry masonry. This is the fact in many situations where materials for the best cut or hammer-dressed work are at hand. If, in these circumstances, the cost of such a lock be compared with that of one on the common plan, the difference of expense will bear no equal proportion to the difference in value. As the canal has already arrived in a region where fine material is abundant, and every day thrown out in the common excavations, the board might perhaps, if apprised of the fact, think it expedient to seize upon the natural advantages, which are thus offered them, for erecting solid and beautiful structures, in the place of those which are ordinary and perishable.

The level of the aqueduct at Jack's narrows, nine miles below Huntingdon, has been raised two feet, and the spans changed from seventy-five feet to one hundred; by which alteration the number of piers will be reduced from three to two, and a more capacious way opened for the passage of ice and driftwood, in that narrow part of the river. The number of piers in the aqueduct below has been reduced, in like manner, from four to three, by a similar extension of the spans; but the level has not been changed, lying already above the reach of any possible injury from floods.

The experience at the Millerstown dam, of the effects of ice in the spring, has made plain the necessity of an apron below the feeder dam, at the Raystown branch, which is in every respect similarly situated, and founded on rock of the same quality. An apron of thirty feet, to lie upon the rock, and be bolted to it, has therefore been added to the plan of that construction.

I do not know that any further observations which I could make, would promote the views of the board.

The enclosed estimate of the upper line, exhibits in a tabular form, the state of every contract on the first day of December. The estimate of the lower line divides itself into two parts; one of which respects the expense of work not yet done; and the other, the balance already due upon contracts so nearly finished, that final estimates upon them can soon be handed in.

Estimated amount of unfinished work below Lewistown:

niata aqueduct at Duncan's island,	$43,800	
ck No. 13, below the aqueduct,	7,238	
m and river lock at Millerstown,	2,700	
ock houses,	2,400	
Guard lock on Section 64,	2,000	
Sections No. 7. x. and 93,	2,567	
Basin and towing paty bridge at Lewistown,	1,100	
Fencing and railing in the narrows,	3,500	
Repairs and superintendence,	7,000	
Several small items of work,	1,500	
		$73,805 00

Amount due on works not yet finally estimated:

Rope ferry and boat channel,	$900	
River locks and dam,	6,300	
Locks,	6,200	
Aqueducts,	5,900	
Sections,	6,000	
		25,300 00
Total amount required to complete the lower line,		$99,105 00

No. 3,

B.

A letter from General William B. Mitchell, Supervisor, Juniata Division, Pennsylvania Canal.

SUPERVISOR'S OFFICE,

Millerstown, Nov. 21, 1829.

To James Clark, Esquire, Acting Commissioner on the Juniata division of the Pennsylvania Canal.

SIR,

I have the honour of transmitting you the following statement, exhibiting the present situation of the Juniata canal between Lewistown and Duncan's island, together with a statement of alterations and repairs which will be required during the winter.

The canal is now in navigable order from Lewistown to Delaware run aqueduct, a distance of twenty-four and a half miles. The puddling on the lower end of this aqueduct has failed, and the apron has been removed for the purpose of extending the trunk thirty feet from its present termination, this alteration would have been completed, had it not been for the difficulty of procuring planks at this season of the year, it will however be in a situation to permit the water to pass in a few days. The puddling of a culvert on section, No. 57, which had given way upon the first letting in of the water, has been repaired. The ends of the aqueduct at Cockalamus creek are now repairing, and will be completed in a few days. The aqueduct at Little Buffaloe creek has been repaired, and is now believed to be in a safe condition. The culverts on sections No. 90 and 91 have proved so defective as to require them to be rebuilt, the work is progressing vigorously, but the difficulty of procuring good stone will prevent their completion for a short time, being situate within half a mile of the present termination of the canal, the transportation on the river will only be increased that distance. In six days from this time the canal from Lewistown to within half a mile of Duncan's island will be navigable.

Sections No. 10 and 58, appear to have been unfaithfully made, particularly section 10, will require extensive repairs during the winter. A part of section 82 requires to be filled up to bottom, to prevent the water from escaping through crevices of the rock. There exists the strongest evidence of a defect in the manner in which the wings and aprons of the wooden trunk aqueducts have been constructed, and but little doubt can be entertained, but that they will have to be altered during the winter. I am of opinion that all the necessary repairs can be accomplished in three months by four assistant supervisors, with twelve men each, which will exhibit the following expenditure:

3,744 days labour, including boarding and dressing tools, at	$1 25	$4,780 00
4 assistant supervisors 312 days at	$2 00	624 00
Cost of timber and materials for aqueducts,		504 00
Materials for repairing two culverts,		500 00
Incidental expenses,		300 00
		$6,708 00

On locks A. 1, 2, 3, 4, & 5, plank have been placed on the lower side of the upper gates to prevent boats from fastening under the arms of the gates, stops have also been attached to the frames of the paddle gates of those locks, to retain them in a proper position, the residue of the locks will be served in the same manner.

Very respectfully, yours,
W. B. MITCHELL,
Supervisor, J. D. P. C.

No. 4.

C.

To the Pennsylvania Board of Canal Commissioners.

GENTLEMEN:

I now beg leave to lay before you a statement of the situation and prospect of the Juniata aqueduct, at Duncan's island. The measurements which have been made by Mr. Petrie, principal assistant, enable me to determine the amount of work done under the present contracts; while those which were taken for the final estimate to the former contractors, after their abandonment, exhibit the amount which had been done by them.

The former contractors, Moore & Winslow, had executed three sevenths of the whole work. A considerable part of this cannot be discovered by an inspection on the ground, as it consists of excavations for the pier-foundations beneath the bed of the stream, and of masonry which the water conceals. When the aqueduct passed into new hands the care of its superintendence was assigned, as a special office, to one of the principal assistants in the engineer department, with a view to secure every important effect of the resolution passed by the board in July, authorising the acting commissioner to engage a special superintendent.

To inspect the work done under the last contracts, entered into on the 8th of September, it would be necessary to resort to the quarries and forests; for there the greater part of the necessary labour lay, in getting out and shaping the materials. When this has been once accomplished, and the materials in proper order, transported to the island, the work of putting them together will not be formidable.

The state of the aqueduct is precisely this: almost all the materials necessary for completing the superstructure have been delivered by Mr. Le Baron, who has that contract on the island; and the spans can be framed and put up in succession, as fast as the piers shall be raised and made ready. The raising of the piers and completing the stone work belong, by contract, to the Messrs. Byrne's. Of their contract, in the three months since they entered into it, they have finished one half; not taking into account the labour and expense of the first preparations: the face stone are nine tenths quarried, half cut, and one fifth delivered, the rough stone are partly provided from quarries near the work. which will supply the rest as they are wanted; and the second half of this contract is advancing rapidly under the hands of one hundred and forty men. It need only be added, that the aqueduct, as it stands, is two thirds done, and the contracorts have till the 15th of April to complete it.

All of which is respectfully submitted,

ALEX. C. TWINING, *Engineer.*

Harrisburg, December 8, 1829.

No. 5.

D.

Amount paid to Jobbing Contractors and Assistant Supervisors.

Lyman Avery	$466 55
Amos Farnham	187 60
John H. Pool	503 69
Stephen Gearhard	2222 62
Thomas Bamborough	1323 86
Harvey Smith	634 50
John H. Pool	431 22
Robert E. Willis	150 50
John Feite	25 00
Elias W. Kulp	139 42

William Cox, Jun	830 48
David Lyles	588 00
Thomas McQuoid	186 00
James McNamee	127 50
Tobias Krider	250 07
Henry Leas	59 50
	$8126 51

JAMES CLARKE, *Acting Commissioner.*

Juniata Canal Office,
Lewistown, Dec. 5, 1829.

No. 6.

K.

A Statement of the Amount of Damages which have been paid, and a List of Persons with whom Agreements have been made.

1828.	July	11.	John Plotner	$5 00
	Oct.	1.	Amos Gustine	75 00
	Nov.	2.	Joseph Cummins	300 00
		15.	Adam Sherman (heirs of)	150 00
	Dec.	1.	James Kellogg	15 00
		1.	Margaret Vancamp	11 75
		17.	Jacob Earhart	36 00
			Andrew Vancamp	25 00
1829.	Jan.	1.	Jonathan Leslie	15 00
	April	10.	Henry H. Burr	20 00
	July	11.	Jacob Wright	500 00
			David Elder	200 00
	—		James & Daniel Johnson	100 00
			Michl. Sypher	70 00
	Augt.	27.	J. D. Elliott	150 00
	Sept.	1.	M. D. Wellman	18 25
			Joseph Stewart	1000 00
			William Woods	500 00
			Walter Clark	220 00
			J. & A. Watson	500 00
		7.	William Morrison	15 00
		18.	Daniel Rider	12 25
		22.	Robert Mitchell	400 00
	Oct.	12.	William Ramsey	1450 00
		27.	Joshua Morrison	648 00
		30.	Jonathan W. Aitkin	185 00
	Nov.	9.	J. &. J. Milliken	18 00
	Dec.	4.	Christian Prightall	90 00
				$6729 25

Damages agreed to be paid.

1829.	Mch. 30.	Robert McCoy	$139 09
	July 4.	James Wightman	120 00
	Sept. 2.	William Jackson	600 00
		Philip Shulze	365 00
		Robert Allison	100 00
		John Port's administrators	25 00
	Oct. 15.	William J. Brown	50 00
	Nov. 5.	John Whitaker	365 00
	Dec. 4.	Mary Raymond	400 00
			$2164 09

JAMES CLARKE, *Acting Commissioner.*

Juniata Canal Office,
Lewistown, Dec. 5, 1829.

No. 11.

I.

A List of the Engineer Corps, Supervisor, Collector, and Lock keepers on the Juniata Division of the Pennsylvania Canal.

Engineer.—Alexander C. Twining.

Principal Assistant Engineers.—Frederick H. Petrie, William Parker, Charles F. Le Baron.

Superintendent of Masonry.—Bryce McDougal.

Assistant Engineers.—George M. Tolton, Clarkson E. Taylor, Augustus F. Hinsch, William Petrie, Joseph M. Nesbit, Thomas O'Bryan.

Draughtsman.—Theodore Franks.

Rodmen.—James W. Benbridge, A. Boyd Hamilton, Charles P. Shannon, James G. Brown, Joseph H. Bury, William M. Patton, George W. Hale.

Supervisor.—William B. Mitchell.

Collector.—Levi Reynolds.

Lock keepers.—Daniel Switzer, John Switzer, John Reynolds, Peter W. Myles, William Reeder, George P. Louder, David Miller. John Thompson, Elisha Haines, Thomas English, —— Galbraith.

JAMES CLARKE, *Acting Commissioner.*

JAMES TAGGART, *Clerk.*

Juniata Canal Office, Dec. 5, 1829.

No. 12.

L.

A summary view of the whole expense of every kind, incurred and estimated on the Juniata Division of the Pennsylvania Canal.

STATEMENT 1. Whole cost of canal.

Total cost of the work on the canal from Duncan's island, as per engineer's estimate marked A		2,176,960 52
Damages that have been paid, as per table K	6,729 25	
Ditto. agreed to be paid, do.	2,164 09	
		8,893 34
Engineering and Superindence.		
In 1827, per report of that year, table E	3,914 75	
Ditto. to December 1, 1828, per report, table G	16,996 50	
Ditto. to December 1, 1829, per report, table H	21,681 50	
		42,592 75
Instruments, stationary, office rent, furniture, postage and other contingent expenses,		2,726 89
Engineering and superintendence, until the canal is finished, (estimated)		21,681 50
Contingencies hereafter until the canal is finished		2,000 00
Total and entire cost of constructing 90 miles of canal on the Juniata		$2,254,855 00

STATEMENT 2. Amount paid, and yet to be paid.

Lewistown line, repairs paid, per table D		8,126 51	
Paid on sections, as per table F	673,919 12½		
Paid on incidental work, as per table G	272,069 89½		
		945,989 02	
			954,115 53
Huntingdon line.			
aid on sections		281,006 50	
aid on incidental work		99,594 28	
			380,600 78
amages paid as per table K			6,729 25

Engineering and superintendence, in			
1827		3,914 75	
1828		16,996 50	
1829		21,681 50	
			42,592 7
Contingencies			2,726 8
Work, &c. done			$1,386,765 2
Deduct amount of certificates issued to contractors			241,368 6
Amount paid by canal commissioners,			$1,145,396 5
Estimated future payments, viz:			
Lewistown line, work yet to be done	73,805 00		
Work done but not paid	25,300 00		
Retained per centage	37,784 03		
		136,889 03	
Huntingdon line, work yet to be done	619,774 55		
Retained per centage	85,580 63		
		705,355 18	
Damages agreed to be paid		2,164 09	
Engineering and superintendence hereafter		21.681 50	
Future contingencies		2,000 00	
Work, &c. to be done		868,089 80	
To which add the amount of certificates that are outstanding and unpaid		241,368 61	
			1,109,458
Agregate cost of 90 miles of canal			2,254,855

STATEMENT 3. Receipts and expenditures.

Cash received from the treasurer, to the board of canal commissioners		1,155,477
Certificates issued to contractors for debts due by the commonwealth		241,368
		1,396,846
Disbursements.		
Paid on estimates on lower line	945,989 02	
Ditto do. upper line	380,600 78	
Ditto repairs on lower line	8,126 51	
Ditto damages	6,729 25	
Ditto engineering and superintendence	42,592 75	
Ditto contingencies	2,726 89	

Engineering and superintendence, in			
1827		3,914 75	
1828		16,996 50	
1829		21,681 50	
			42,592 7
Contingencies			2,726 8
Work, &c. done			$1,386,765
Deduct amount of certificates issued to contractors			241,368
Amount paid by canal commissioners,			$1,145,396
Estimated future payments, viz:			
Lewistown line, work yet to be done	73,805 00		
Work done but not paid	25,300 00		
Retained per centage	37,784 03		
		136,889 03	
Huntingdon line, work yet to be done	619,774 55		
Retained per centage	85,580 63		
		705,355 18	
Damages agreed to be paid		2,164 09	
Engineering and superintendence hereafter		21.681 50	
Future contingencies		2,000 00	
Work, &c. to be done		868,089 80	
To which add the amount of certificates that are outstanding and unpaid		241,368 61	
			1,109,458
Agregate cost of 90 miles of canal			2,254,855

STATEMENT 3. Receipts and expenditures.

Cash received from the treasurer, to the board of canal commissioners		1,155,477
Certificates issued to contractors for debts due by the commonwealth		241,368
		1,396,846
Disbursements.		
Paid on estimates on lower line	945,989 02	
Ditto do. upper line	380,600 78	
Ditto repairs on lower line	8,126 51	
Ditto damages	6,729 25	
Ditto engineering and superintendence	42,592 75	
Ditto contingencies	2,726 89	

No. 2.

Tabular view of work extending from section No. 95 to 184 inclusive.

Sect. No.	Com. Excav. C. yards.	Cts.	Diff. Excava. C. yards.	Cts.	Hard bank. C. yards.	Cts.	Embankment. C. yards.	Cts.	Puddling.½ C. yards.	Cts.	Slate. C. yards.	Cts.	Loose Rock. C. yards.	Cts.	Solid Rock. C. yards.	Cts.	O. S. Wall. Perches	Cts.	Pro. Stone. Perches.	Cts.	Inner side Wall S. yards.	Cts	Grubbing. Dollars.	Amount. Dollars Cents.	Done. Dollars Cents.	To do. Dollars Cents.
95	10,119	11	12,429	18	5024	20	10,798	16	803	25	3355	35			5948	67	1600	50			2112	16	100	12,680 67	3628 67	9052
96	9701	12½	8466	18	2891	30	1775	16	875	25	4355	30					1500	55	1500	95			300	7608 05½	2597 76	5210 29½
97	5000	12	6500	18	1300	18	2000	15	200	16	700	30									1500	16	4	2796	366 54	2429 46
98	5884	12	7875	16	825	30	12,381	20	917	28	2328	40	722	37	8004	60	3270	50					275	12,858 28	6326 68	6521 60
99	4891	12	9946	16	3000	30	20,000	20	5000	28	2750	40			8800	60	5062	50					450	19,839 28	337	19,502 28
100	7201	12½	10,393	16	4167	25	5054	16			676	40	150	30			1578	50	1578	80	600	16	350	7226 19½	4223 01½	3003 18
101	5536	11	4749	18	7536	25	421	16					117	30							180	16	130	3609 04	3228 74	380 30
102	6034	10	8207	18	5525	30	2840	15	500	20			80	20							200	16	12	4324 16	3549 76	774 40
103	6182	12	4322	16	1864	26	1090	18															60	2174 20	1997 58	176 62
104	5719	12	6335	18	2388	30	13,563	18	1080	22	6675	40			6683	62	3558	60	3400	120			255	18,461 98	9727 92	8734 06
105	5896	11	2773	18	375	24	14,043	20			1857	40	50	40	1037	56	1647	45	1617	112½			175	8158 14½	6169 98½	1988 16
106	2008	11	7000	18	3000	25	9000	25	1000	25	1200	31	500	35	16,441	50	3800	45	3800	137½	1500	16	100	20,766 50	4665 29	15,901 21
107	12,784	12½	11,497	16	1542	25	18,296	20	845	20			177	37½							500	16	200	7997 59½	3630 24	4367 35½
108	4379	12	7512	18	331	30	10,698	19¼	775	25	958	35	264	30	141	55					800	16	100	4976 85	3142 65	1834 20
109	2282	11	2225	14	2089	19	19,018	15	150	17	500	40											100	4137 63	1457 69	2679 94
110	7420	11	8548	16	652	20	10,632	16	75	17	1190	40	4751	32	943	68	2908	50	1758	80	1500	16	175	8521 79	6036	2485 79
111	5034	12	1924	14	524	25	14,975	16	1925	25½	4062	30	225	40	10,189	52	4495	50			1000	16	240	12,831 07	5587 50	7243 57
112	5307	10	2707	18	785	28	6400	20	105	22													65	2605 66	1131 98	1473 88
113	6611	12½	8717	16	4958	30	1434	14					450	50							1500	16	299	4583 25½	2409 23	2174 02½
114	18,769	8	15,666	12½	5795	16	19,496	17¾	560	20			275	31¼							900	16	500	9649 89¾	3701 13	5948 76¾
115	9757	12¼	4619	17	970	25	6544	18			75	27	150	37½							500	16	500	4125 77½	1194 07½	2931 70
116	9522	12	3704	14	769	25	5614	18															450	3315 89	2881 69	434 20
117	4993	12	6232	18	3186	30	1564	20	80	25			50	40							150	16	700	5753 40	2051 22	1722 18
118	4000	12½	12,650	17½	590	23	16,500	20	250	25			100	38			vertical						225	6504 45	3919 44	2585 01
119	3500	10½	12,650	16	1000	23	22,600	15½	250	20			500	39	3500	49	350	43	350	100			200	6785	3752 12	3032 88
120	1660	11	11,500	15	2000	28	5000	16			5300	39	850	38	6600	47	2500	49	1500	80			150	11,457	3878 05	7578 95
121																								2360 30	2360 30	finished
122	5500	13	14,150	18	6570	27	4100	14	400	15	50	35	260	35			3100	42	3100	106			950	10,170 40	9748 93	421 47
123	3400	12	16,750	15	2400	18¾	4600	15			150	25	2500	40			1250	60	1250	60			300	7160	2991 17½	4168 82½
124	1300	12	20,500	15	6000	19	4500	13					5000	38							2800	16	299	6843	4970 92	1872 08
125			23,500	15	5500	25	15,600	19					1000	40	830	62							50	8641	430 05½	8210 94½
126	2500	12	12,100	18	300	28	40,000	22	150	22			50	40									125	11,540	10,687 84	852 16
127																								4958 44	4958 44	finished
128	3100	9	20,070	15	6200	24	6500	16	300	22	8400	40	300	40	560	70	1100	62½	1100	110			130	11,643	7114 39	4528 61
129	2800	12	14,600	15	2400	20	8500	16			3100	25	250	40	5500	60							400	7741	3314 90	4426 10
130	5300	13	8650	15	600	18¾	6200	15			1250	25	260	40	250	60					1000	16	100	3855 50	2714 33¾	1141 16¼
131	3200	10	12,900	16	8600	30							6400	28	900	56					5544	16	150	8297 04	2214	6083 04
132	8000	11	12,000	14	4000	25	7000	16			4000	55											250	6330		6330
133	~~8000~~	~~11~~	~~6000~~	14			3000	25															25	2355		2355
134	11,200	12	9900	15			2000	16	90	25			760	38	12	50	110	50			1000	16	50	5731 50	5270 45	460 83
135	6500	12¼	10,100	15									500	40							1000	16	100	2707 50	431 57½	2275 92½
136	14,500	11	6200	14	750	16	21,400	18			450	30	650	36	2500	48	4100	62½	4000	80			125	13,906 50	2954 16	10,952 34
137	2100	12	11,600	17	1250	25	5600	18					1200	40	2 00	68	1750	45	1750	75			200	7752 50	2228 20	5524 30
138	2600	12	8060	15	3500	25	1350	14					500	28	1000	56	960	45			500	16	75	3942	3433 96	508 04
139	1400	12	15,600	15	1000	25	5200	17					1200	40	6500	62½	5750	55	650	50			600	12,272	7172 53½	5099 46½
140	1250	12½	12,450	17	2000	28	4100	16	3450	25			1650	28	2700	75	6730	50	3000	65			600	12,753 25	5120 14	7633 11
141	4500	11	10,200	16	500	25	5500	16					1500	28	2500	49	5100	48	1500	50	700	16	600	8387	2458 59	5928 41
142	1200	12	2250	17	39,300	25																	225	10,576	6265 40	4310 60
143	2400	12¼	7550	17½	2300	28	7150	20					150	38							400	16	125	3941 25	2581 35	1359 90
144			10,800	15	5400	20	600	20	150	25	200	31	1800	40			1450	55	1000	80	1000	16	500	5897	3209 90	2687 10
145	3250	12	5000	15	600	20	2700	20	500	25	550	40	1500	37	5550	75	2000	60	Planking		$1700		350	10,312 50	5169 50	5143
146	3525	12	6500	16	5000	25	3500	20					800	40	1000	62					2600	16	210	4479	3491 20	987 80
147	5112	12	8100	16	550	25	3400	20	66	25			440	40	740	62	110	50			700	16	100	3645 24	2804 22	841 02
148	5825	12	7500	13	2000	25	5500	17			3900	25	50	37½							50	16	100	3888 25	2973 60½	914 64½
149	1000	7	18,000	11	4000	14	10,400	10	2000	15	300	17	2300	20	2000	38	2800	45	900	45			350	7196	2813 57	4382 43
150	2850	7	7920	14	2400	22	4600	13	1700	19			1730	27	800	45					1500	16	180	3952 40	2842 30	1110 10
151	2389	12¼	7270	14	3300	25	13,125	20					700	27							1900	16	175	5434 42½	4310 57½	1123 85
152	9080	12½	8400	18	2280	20							1935	40	45	50					3580	16	250	5030 05	4915 50	114 55
153																								2131 22½	2131 22½	finished
154	7500	12	11,200	15	1800	20	2300	18					600	40							1700	16	10	3876	3559 92	316 08
155	1200	12½	17,000	16	5431	28							2700	33	50	60	1700	50	500	60	2000	16	325	7084 68	3086 72	3997 96
156	4300	12½	7000	15	400	19	6000	1 ¼					70	45	1100	71	909	50			811	16	125	4305 26	3802 22½	503 03½
157	1031	12	9500	13½	700	14¼	1980	15															500	2304 72	1730 23	574 50
158	600	10	15,000	12	5500	28	4600	17															600	4242	2902 40	1339 60
159	710	11	22,500	16	9449	22	40,167	25					700	25			950	54	909	75			50	17,171 38	8329 20	8842 18
160	450	11	10,700	15	10,000	25	24,400	22					250	37	50	50	500	50			800	16	100	10,118	2848	7270
161	312	11	13,000	18	4000	25	2482	20					322	37							700	16	190	4291 66	1405 31	2886 45
162			9500	14	4700	30	16,000	22	9000	23			19,500	33	8500	62					5600	16	275	25,116	8872	12,244
163			18,000	14	14,000	30	8000	22	3000	22			7000	33	6000	62	5500	48			2500	16	405	18,625	6106 60	12,518 40
164	1000	9	18,400	16	15,600	20	3000	20	5000	25			11,100	30	450	60	2936	53	1756	56	2374	16	450	14,994 08	7701 24	7292 84
165	3000	12	10,300	18	8600	25	28,000	22	1800	25			3350	30	500	60					4618	16	300	13,317 88	1759 06	11,558 82
166	6000	11	6600	16	4950	29	8200	17			1808	35	150	40	300	75	2450	50	2150	62			250	8271 30	8029 20	242 10
167	4000	11	16,000	16	6000	25	21,400	16	2000	25	2000	50	600	30	13,500	56	5170	50			2174	16	350	20,046 84	13,167 92	6878 92
168	12,500	11	11,300	16	2800	25	19,200	16	2500	25			7300	30	13,600	56	4981	50			2400	16	350	20,722 50	13,399 60	7322 90
169	6454	12½	11,190	18	2100	23	1550	20															240	3853 95	3743 49	110 46
170	9500	10	18,300	16	6700	25	1300	18	600	25	5600	40			600	55	4400	50	4400	80			250	14,487	6689 75	7797 25
171	3400	12	2100	18	900	30	25,600	22			7000	40			300	62½	1750	55	1750	75			310	12,610 50	6177 50	6433
172	6353	12	3800	15	956	25	11,500	18					110	33			50	48	50	112½	330	16	150	3963 61	3317 72	646 09
173	5375	10½	7382	11½	2843	28	8950	16			612	30	370	59							1070	16	250	4918 44½	3430 54½	1487 90
174	4450	11	13,250	12¼	3100	25	2763	18					597	37½	151	60					1782	16	65	4106 28½	2268 60	1837 68½
175	1650	10	13,200	14	6006	18¾	1500	12½					858	15	900	25	2020	40	2020	112½	2574	16	150	7297 66½	3755 58¼	3542 18¼
176	4699	13	5694	16	1495	20	1800	20					250	40			240	45	100	100	360	16	350	2696 51	991 70	1904 81
177	6420	10	11,900	14	2000	25							300	35							900	16	100	3157		3157
178	2261	11¾	5557	16	820	26	6080	16															100	2440 78¾	1590 21	850 57¾
179	1080	12	2590	13	473	25	19,529	15					150	34							450	16	190	3786 90	490 50	3296 40
180			7058	13	500	18	11,878	18					100	28	200	40							125	3738 58	1053 68	2684 90
181			23,300	12	9000	16	14,457	15	10,200	16	2200	24	600	24	2100	38	4410	44	3000	85			200	14,196 95	2463 28	11,733 67
182			19,850	15	6500	25	11,338	20	4850	31	7700	25	1600	25	5686	50	2523	50					75	14,678 10	2365	12,293 10
183	2082	12	3180	16	941	25	21,217	25			250	40			911	75	1970	50	1920	120			40	10,460 39	7867 69	2592 70
184	5100	12	8200	16			19,633	25									1404	50	1404	120			55	9254 05	3236	6018 05
R.T.F.	6220	11	11,900	14	3810	20	700	20					300	40			1450	60	1450	100	900	16	200	6056 20	3731 74	2304 46

iden	S—Page 186
Line	To do.
	$ 590
	Finished
	3,032 31
	4,333 80
	312 50
	35
	4,785
	300
	165
	515
	754 25
	540
	1,421 10
	796 30
	575
	844 97
	45

Tabular view of work incidental to the foregoing sections

Section.	Character of work.	Excavation.	Foundation.	Masonry.	Price.	Woodwork.	Lineal feet.		Feet lift.		Embk. and Pud.	Protection walls.	Extra.	Amount.	Done.	To do.
95	Public bridge	$ 10	$ 30	perches 200	$ 2	$ 150								$ 590		$ 590
	Culvert bridge													1,172 75	$ 1,172 75	Finished
	Aqueduct over Kiskacoquillas	350	20	1600	2 25	1,316					$ 100	50		5,606	2,573 69	3,032 31
	Lock No. 16	278 80							No. 10	$380	260			4,333 80		4,333 80
96	Culvert of 4 feet span	50 60		90	2 75						45			312 50		312 50
98	Do 8 do	462		319	3									1,454	1,419	55
100	Locks Nos. 17 & 18	1,557 25							14	450	460			8,017 25	3,232 25	4,785
101	Farm bridge			80	1 75	160								300		300
102	Do do					165								165		165
103	Public do	10	30	200	1 50	175								515		515
104	Culvert of 8 feet span	285 75		375	2 75									1,317	562 75	754 25
105	Public bridge	10	50	200	1 75	150								640	100	540
107	Farm bridge and 2 culverts	265 50	60	570	2 90	175								2,153 50	732 40	1,421 10
108	Culvert, 6 feet span	621		528	2 90									2,137 70	1,341 40	796 30
110	Public bridge	10	30	200	1 80	175								575		575
111	Aqueduct over Brightfields	250					No. 74	$10					iron $ 50	5,565	2,720 03	844 97
112	Farm bridge					175						60		235	190	45
	Culvert	395 40	80	215	2 75						146 55	14		1,227 20	1,119	108 20
	Locks No. 19, 20 and 21	1,859 60							18	450	620			10,609 60	5,809 62	4,799 98
114	Culvert 6 feet span	118 76	100	375	2 75						57 50			1,301 51		1,301 51
116	Farm bridge					170						30		200		200
118	Public do		50	200	1 75	175								575		575
	Culvert 6 feet span	122	100	375	2 30						90			1,249 50	350	899 50
119	Aqueduct over Wakefield	212 62		1,850	2 37		47	85			135			5,145 42	4,051 09	1,092 33
	Farm bridge					141						30		174	75	99
120	Culvert of 4 feet span	50	70	125	2 75						150			617 50	298 75	318 75
120	Farm bridge					144						30		174		174
125	Lock No. 22	940							9	433	180			5,017	885 36	4,131 64
	3 public bridges	30	90	450	1 75	400								1,307 50		1,307 50
	Culvert of 16 feet span	561 50		760	3 00								cut stone 600	3,441 50	3,081 50	360
126	Farm and public bridge		20	305	1 75	525								908 75	713	195 75
	Culvert											50		2,345	2,345	
128	Culvert of 6 feet span	81		370	2 75						75			1,173 50	940	233 50
113	Farm bridge					179						30		209		209
128	Foot bridge		10	50	2	50								160		160
129	Aqueduct	100	20	950	2 25		25	12 50			105			2,687 50	854 60	1,832 90
130	2 farm bridges					330								330	165	165
131	Farm bridge			80	1 75	160								300		300
132	Do do			80	1 75	160								300		300
133	Culvert of 6 feet span	100		200	3						182 50			782 50		782 50
134	Farm bridge					164 12								164 12		164 12
135	Do do			80	1 75	160								300		300
137	Do do					150								150		150
141	County road													400		400
142	Public bridge	10	40	450	1 90	175								1,050	609 75	470 25
	Aqueduct over Beaver creek		250	600	2 25	400					50	40		2,090	1,703 95	384 05
	Bridge for township road	10	15	60	1 25	80								180		180
	Lock No. 23	170							8	425	60			3,636	365	3,273
143	Farm bridge			80	1 75	160								300		300
144	Public do	10	25	200	1 60	175								530		530
	County road													150		150
145	Lock No. 24	975							8	406 25	150			4,375	363	4,012
	Feeder dam at Aughwick	125		1,250	2 75		705	10 50				1,575		12,540	4,080 55	8,459 45
	River cut and locks	4,025							12½	512	3,800	720	200	15,145	6,000	9,145
	Guard lock	480		1,300	3	1,700					320	2,250	60	8,710	2,246 85	6,463 15
	120 rods county road													800		800
146	Aqueduct over Greenbriar	150		500	2 25		54	12						1,683	1,510 95½	172 04½
	Small bridge over do	60		60	1 50	80								230		230
	Farm bridge			80	1 75	160								300		300
146	Rods of county road													400		400
147	Farm bridge			80	1 75	160								300		300
	Culvert of 4 feet span	100	45	70	2 75						48 50			386	333 60	52 40
	Lock No. 25	550							8	440	260			4,330	2,002	2,328
148	Lock No. 26	1,457 90							8	430	180			5,057 90	2,637 90	2,420
	Public bridge	10	40	200	1 75	175								575		575
	County road													300		300
149	Culvert 4 feet span	30	80	85	3									365	270	95
149	Farm bridge					165						50		215		215
151	Culvert bridge, 4 feet	30	40	65	2 75									248 75		248 75
	Public bridge	40		250	1 75	175								652 50		652 50
154	County road	100												100		100

Tabular view of work incidental to the foregoing section.

Section.	Character of work.	Excavation.	Foundation	Masonry.	Price.	Woodwork.	Lineal feet.		Feet lift.		Embk. and Pud.	Protection walls.	Extra.	Amount.	Done.	To do.
155	County road													$ 650		650
156	do do													600		600
	Locks No. 27 & 28	$ 3,236 80							No. 16	$425	$ 298			10,334 80	$ 5,236 80	5,098
157	do 29	764 25							7	400	188			3,752 25	1,864 25	1,888
	do 30	599 50							7	425	188			3,762 50	908 75	2,853 75
159	Public bridge	20	$ 10	perches 200	$ 1 50	$ 150								480	219 80	260 20
	River aqueduct	Gross sum				31,300							$ 5,000	36,300		36,300
160	Tow path bridge			80	1 75	180								520		520
161	Farm bridge					140						40		180		180
162	Public bridge		40	180	1 75	175								530		550
	Road made to ferry													900		900
163	Lock No. 31	570							10	350	320			4,290		4,290
165	River aqueduct	Gross sum				275							1,500	29,000	5,142 25	23,857 75
	Tow path bridge			80	1 75	180								320		320
166	Public bridge	10	25	240	1 75	175					467 50			1,097 50	961 50	136
	County road 55 rods													237 50		237 50
168	Lock No. 32	1,196							6	467	285			4,283	767 65	3,515 35
169	Farm bridge					150						36		186	51	135
170	Public bridge	20	20	155	1 75	200								511 25	117 26	393 99
171	Culvert 6 feet span	16	60	265	2 90	-					39			883 50		883 50
172	Parm bridge	6				163						51		220	47 48	172 52
173	do do					163						25		188		188,
	Mill creek aqueduct	55 80	400	415	3		No. 106	$ 12			22 20			2,989		2,989
174	Farm bridge	2				150						25		177	94 50	82 50
176	Tow path bridge	5		100	1 75	175								355		355
	2 Culverts 4 feet span	300	100	200	3									1,000		1,000
177	Lock No. 33	768					6	450			156			3,624		3,624
178	do 34	564					6	450			280			3,544	725	2,819
178	Farm bridge					150						35		185		185
179	Culvart 4 feet span	74	50	80	2 80						21			369		369
	Parm bridge					165						49 50		214 50		214 50
180	do do					165						20 40		185 40		185 40
	Lock No. 35	543							6	460	216			3,319		3,319
181	Culvert 6 feet span	75	60	150	3						50			635		635
183	Lock No. 36	1,013 20							6	425	276			3,839 20	1,177 10	2,662 10
	Aqueduct standing stone creek	300	83	986	2 75		84	9 50						3,894 50	1,098 20	2,796 30
	2 sewers	115 40		185	2 75						33 60			657 75		657 75
	Horse bridge	10		60	1 75	125								240		240
	do do	10		60	1 75	125								240		240
	2 sewers	76	32	130	2 75						22 20			456 02		456 02
	Culvert 13 feet span	200	120	450	3								300	1,970		1,970
	Public bridge	10		200	1 75	225								585		585
R. Feeder	Guard lock	580	240	1,200	2 62½	1,700			Chute		262	700	150	6,782	5,677	1,105
	Dams and embankments	360		1,968	2 62½		419	10 50		2,210 60	1,000	1,662 50	600	15,398	6,362 50	9,035 50
														$ 288.702 40	$ 87,306 76¼	$ 201,395 63¾

Section.	Character of work.	Common and difficult excavation.		Hardpan.		Slate rock.		Solid rock.		Loose rock.		Embankment.		Paving.		Grubbing and extras.	Amount.	Paid.	To cost.
			Prices.	Cubic yards.	Prices.	C. yards.	Prices.	C. yards.	Prices.	C. yards.	Prices.	C. yards.	Prices.	Rods.	Prices.				
165	Moving turnpike road	C. yards 3,600	18							600	30	1650	22	50	$ 5 00	$ 425	$ 1,766		$ 1,766
179	do do	3,600	13	2100	25	1300	34	1650	56	200	34	1200	15	160	6 00	654 35	4,221 35	$ 3,734 35	487
		1,200	12																
181	do do	2,905	15	680	22	5900	38	15900	58			160	15	152	5 00	803 50	12,620 85	12,140 35	480 50
		2,000	11																
182	do do	3,800	15			9500		15500				2700	20	152	5 00	626 50	15,306 50	8,952	6,354 50
																Amounts	$ 33,914 70	$ 24,826 70	$ 9,088 00
																Amount brought down	288,702 40	87,306 76¼	201,595 63¾
																Total	$ 322,617 10	$ 112,133 46¼	$ 210,483 63¾
																Add for 15 lock-houses	12,000 00		12 800 00
																Add for waste weirs	5,000 00		5,000 00
																Add for fencing	16,000 00		16,000 00
																Total cost of incidental work	$ 355.617 10		$ 243,483 63¾

RECAPITULATION.

On the line below Lewistown there has been estimated	$ 991,899 56	
And will be required to complete the payments on it	99,105 00	$ 1,091,004 36
The amount done upon the Huntingdon division is	$ 466,181 44	
And unfinished work remains to the value of	619,774 55	1,085,955 96
Cost of canal, 90 miles		$ 2,176,960 52

This statement, it may be seen by the tables, includes an important item of expense not noticed at all in the estimates of last year,—that of providing stone for outside walls; the amount of that item being fifty thousand dollars. It does not include the cost of damages, engineering, and superintendence; which may be gathered from the tables furnished by the acting commissioner. Aside from this the canal can be constructed for the sums which have been given.

The state of the aqueduct at Duncan's island, I shall beg leave to make the subject of a special report, as soon as the measurements of work done under the last contracts shall have been returned.

All of which is respectfully submitted.

Lewistown, December 1st, 1829.

ALEXANDER C. TWINING, *Engineer.*

S—Page 190

ia canal, since December 5, 1828.

No. of section	Solid rock.	Per perch of 25 cut feet.		Per sq'r yard.	Grubbing and clearing.
		Vertical wall.	Outside slope wall.	Inside slope wall.	
25					
41					
6					
9					
10					
11					
13					
133					
135					
160					
165					
177					

At

Ki

M

E.—A list of work which has been re-let on the Juniata division of the Pennsylvania canal, since December 5, 1828.

No. of section.	Names of Contractor's.	Date of contracts.	Per cubic yard.								Per perch of 25 cut feet.		Per sq'r yard.	
			Common excavation.	Difficult excavation.	Hard pan.	Embankment	Puddling.	Hard slate rock.	Loose rock.	Solid rock.	Vertical wall.	Outside slope wall.	Inside slope wall.	Grubbing and clearing.
23	Donivan & Twitchell	Feb. 11, 1829	15	15	25	20	30	25		50	45	50	13	
41	Dolan & Connally	March 20, do	15	15	30	22	30	25	40	57½	48	48	16	Est. of eng.
69	William Parsons	July 15, do	the gross sum of fifteen hundred dollars.											
97	Richard M. Shaw		10	14	25	10	30	33	42	50	45	45	16	$ 50
103	Dolan & Connally	Dec. 25, 1828	12	16	26	18	23	32	32	60	50	55	16	60
112	Skillinger & Weekes	Feb. 18, 1829	10	18	28	20	22	37½	35	70	50	60	16	65
132	Seaburg, Gearhard & Co.		10	15	25	15	20	30	30	56			16	500
133	A. Barnes & Brothers		12	15	18	16		35	38	50	50	50	16	50
135	J & D. Johnson		12	14	18	14		25	40	60			16	Est. of eng.
160	Wm. B. Mitchell	April 28, do	11	15	25	22	25	31	37	50	50	50	16	Do do
165	Bishop & M'Coy	June 20 do	12	18	25	22	25	30	30	60	40	40	16	Do do
177	Aitkin & Mathers		11	15	25	20	25	30	40	50	50	50	16	$ 75

AQUEDUCTS.

Location.		Names of contractors.	Cut stone per perch.	Rubble stone per perch.	Iron per pound.	Superstructure, gross sum.	Trunk per foot.
At Duncans island.	Stone work	Wm. & Michael Byrne	$ 20	$ 3	12½		
	Wood work	Wm. Lebarron				$ 24,200	
Kiskacoquillas creek		J. & F. M'Clure		2 24			$ 11 75
on section 129		Hackenburg & Moyer		2 45			9 50
Mill creek		Moorehead & Henderson		1 50			10

LOCKS.

Location.	Names of contractors.	Per foot lift.
No. 0	Philip Roch	$ 445
3	M. D. Wellman	550
23 & 24	Ehle & Hodge	598
31	Clarke & Nevin	529
33 & 35	M'Culloch, Elliott, & Co.	445

CULVERTS.

Location.	Names of contractors.	Stone work per perch.	Wood foundation gross sum.	Cut stone per foot.
Sections 18 & 21	Michael Donivan	$ 3 25	$ 125	
97	Eisenbine Fichthorn & Co.	2 75	75	
133	Jacob Hoffman	2 75	120	
151	Wm. Morrison & Co.	2 37½	Est. of engineer	
176	Stackpole & Stees	3 00	Do do	
184	Brown & Groves	3 25	Do do	60 cents

PUBLIC BRIDGES.

Location.	Names of contractors.	Stone work per perch.	Superstructure per foot.	Superstructure gross sum.
Sections 26	Jacob Bishop	$ 1 75	$ 6 75	
103	A. Mayse	2		$ 200
125	J. & D. Johnson	1 62½		200
144	James Ross & Son	2		200
148	Hodge & Heberling	1 75		165
151	Morris Freel	2		190
162	James Stewart	1 19		145
184	J. & D. Johnson	1 50		200

FARM BRIDGES.

Location.	Names of contractors.	Stone work per perch.	Wood work gross sum.	
Sections 101	Mayse & Steel	$ 1 75	$ 175	
131 & 135	James Leatter	1 75	180	each
132	Seaburg, Gearhard & Co.	1 87½	160	
143 & 147	Elijah Leonard	1 90	175	each
146	J. & F. Murray	1 30	170	
183 & 184	J. & W. Moorehead	2 50	125	each

TOW PATH BRIDGES.

Location.	Names of contractors.	Stone work per perch.	Wood work gross sum.
Sections 160	James Criswell	$ 2	$ 190
165	Bishop & M'Coy	2 12½	250
Raystown feeder	Hodge & Heberling	2 80	120

SWING BRIDGE.

Location.	Names of contractors.	Gross sum.
Section 184	Moorehead & Miller	$ 850

JAMES CLARKE, *Acting Commissioner.*

Juniata Canal office, Lewistown, December 5th, 1829.

No. 8.

190

e Juniata division of t

	Number of sections.	C	
	55	Casper	
4	55	Seaburg	91
	56	Charles	
1	56	Brough	79
1	57	Schnabe	81
8	58	Pettit &	
	58	Mark &	
8	59	Schnabe	
5	59	Gould &	62
	60	Stackpo	66
			80

F.—A statement of estimates of the sections on the lower line of the Juniata division of the Pennsylvania canal, and payments made thereon.

Number of section.	Contractor's Names.	Amount of estimates.		Amount paid.	
No. 0	Miller & M'Clure		501 12		404
1	Daniel Vanslyke	$2680 82½	6879 76	2360	6558 94
1	Consaul, Yates & Magee	4198 94		4198 94	
2	Consaul, Yates & Magee		5887 21		5887 21
3	Consaul, Yates & Magee		3531 81		3581 81
4	Beaumont & Co.	1034 12	13,442 98	1034 12	13,442 98
4	Mark & Brown	12,408 86		12,408 86	
5	Beaumont & Co.		9670 58		9670 58
6	James Thompson	63 68	8261 05	63 68	8261 05
6	James Criswell & Co.	8197 37		8197 37	
7	Burr & Herkimer	5599 31½	21,820 56	4634	20,841 08
7	Amos Farnham	13,441 25		13,227 08	
7	George Young	2980 50		2980	
8	Paul Provest & Co.	1179 35	27,189 83	944	26,953 48
8	Bernard, O'Friel & So.	26,009 48		26,009 48	
9	Guy, Johnson & Co.		21,799 50		19,862
10	John H. Pool & Co.		16,925		17,039
11	Do do		20,709 81		20,709 81
12	Joseph M. Kasson & Co.		12,531 06		12,531 06
13	Do do		8907 88		8907 88
14	Thomas & James Moore		10,321 89		10,321 89
15	Do do		8557 14		8557 14
16	Vanslyke & Devault		14,825 21		12,713
17	M'Manus & Cox	2001 87	7751 20	2001 87	7751 20
17	Hawley & Twitchell	5749 33		5749 33	
18	Spink & Wellman	3437	9271 60	2749	8565 25
18	Shibuah Spink	103 35		85	
18	Michael Dunivan	5731 25		5731 25	
19	John & Charles Murray		5372 59		5372 59
20	Cummins & Scott		3751 59		3751 59
21	Michael Burke		9001 77		9001 77
22	Heney & Erwin	1699 33	6654 37	1699 33	6654 37
22	David Cummings	4955 04		4955 04	
23	Michael Holman & Co.	2169 70	5417 05	1787	5034 35
23	Dunivan & Twitchell	3247 35		3247 35	
24	David Lusk		3597 07		2692
25	Spink & Wellman		11,534 40		11,534 40
26	Holman & Lyles		10,076 47		10,076 47
27	Michael Dunivan		4987 49		4987 49
28	William Sternbugh	2209 26	7984 67	1766 59	7542
28	J & C. Murray	5775 41		5775 41	
29	William Sternbugh		5572 08		5572 08
30	Toner & Osburne	2699 67½	11,237 75	2699 67½	11,237 75
30	Hugh Toner	8538 07½		8538 07½	
31	Anderson & Groves	1718 61	12,139 80	1718 61	11,814 11
31	Isaac & James Thompson	1645 69		1320	
31	Stewart Turbett	8775 50		8775 50	
32	Hugh Spear	466 72	2006 82	466 72	2006 82
32	J. & J. Thompson	1540 10		1540 10	
33	Isaac & Samuel Thompson		7322 88		7323 88
34	Christopher Mark	292 50	2030 62	240	1978 12
34	Dolan & Connally	1738 12		1738 12	
35	Smith & Garmon	1104 88	2811 98	906	2513 10
35	Dolan & Connally	1707 10		1606 10	
36	Christopher Mark	3091 12	14,312 17	3091 12	14,312 17
36	Michael Burke	11,221 05		11,221 05	
37	M'Names & O'Friel	1912 23	9692 86	1533 50	9314 13
37	Stackpole & Stees	7780 63		7780 63	
38	Seaburg, Gearhard & Co.		3024 38		3024 38
39	William Parsons		2264 95		2264 95
40	Guy, Johnson & Co.		3053 50		3053 50
41	Smith, Nowlan & Smith	4753 62	8332 07	3888	7466 45
41	Doland & Connally	3578 45		3578 45	
42	Dearmond, Rodearmel & Co.		2722 49		2722 49
43	Knote & Wallace		5200 78		5200 78
44	William Parsons		3805 43		3805 43
45	James Ross & Son		2875 28		2875 28
46	Milliken & Brothers	919 15	3097 65	746	2924 50
46	Joseph Smith & Son	2178 50		2178 50	
47	Aitkin & Mathews		2798 75		2798 75
48	Ross & Allen		2825 80		2825 80
49	David Brought		3597 98		3597 98
50	Guy, Johnson & Co.		3951 43		3951 43
51	Consaul, Yates & Magee		4052 94		4052 94
52	Evans & Smith		2714 03		2714 03
53	Patrick Brown		8250 12		8250 12
54	Beaumont & Co.	1365 30	10,557 84	1100	10,292 54
54	Samuel Andrews	9192 54		9192 54	
55	Casper Dull, Jr.	$680	2970 91	546	2836 91
55	Seaburg, Gearhard & Co.	2290 91		2290 91	
56	Charles O'Donnel & Son	556 60	4087 39	446	3976 79
56	Brought & Dunbar	3530 79		3530 79	
57	Schnabel, Stoughton & Co.		3584 81		3584 81
58	Pettit & Righter	4759 15	13,808 05	4337 00	12,037
58	Mark & Brown	9048 90		7700	
59	Schnabel, Stoughton & Co.	1243 38	5330 10	1011 90	5098 62
59	Gould & Madgin	4086 72		4086 72	
60	Stackpole & Stees		4021 66		4021 66
61	James Gallagher		5144 80		5144 80
62	Armstrong & Anderson	3129 20	5626 74	3129 20	5626 74
62	Philip Brady & Co	2497 54		2497 54	
63	Guy, Johnson & Co.		4279 25		4279 25
X	John Nesbit		1866 80		1569
64	Schnabel, Stoughton & Co.	5557 90	19,846 87	4450	15,685
64	Rathbone & Smith	14,288 97		11,235	
65	Schnabel, Stoughton & Co.	180	9588 96	144	9027 09
65	Clark & Cooper	2631 87		2106	
65	Johnston, Shields & Co.	6777 09		6777 09	
66	Brandt & Cox	406 03	7241 33	325	6870 28
66	Woolverton & Porter	1165 02		875	
66	Gould & Madgin	5670 28		5670 28	
67	Shuman & Cummins		2059 66		2059 66
68	Aitkin & Mathers		3180 81		3180 81
69	Armstrong & Anderson	1028 22	5746 58	1028 22	5204 80
69	Clark & White	1642 66		1353	
69	Aitkin & Mathers	1495 12		1243	
69	William Parsons	1580 58		1580 58	
70	E. Bosserman	232 41	3328 87	211	3307 46
70	Shuman & Cummins	3096 46		3096 46	
71	M'Namee & O'Friel		3471 83		3471 83
72	Thomas Smith		15,942 34½		15,942 34½
73	Brandt & Cox		6800 12½		6800 12½
74	Chauncey Mears		5277 61½		5277 61½
75	E. Bosserman		5387 29		5387 29
76	Laird & Hunter		8362 67		8362 67
77	Ira & Nelson Mirrick		3955 36		3955 36
78	Guy, Johnson & Co.		2367 25		2367 25
79	James & Daniel Johnson		9087 97		9087 97
80	Wiley & Leaphe	260 40	4288 39	209	4236 99
80	James & Daniel Johnson	4027 99		4027 99	
81	Dunmody & Egan	875 57	5834 21	875 57	5834 21
81	B. & A. O'Friel	4958 64		4958 64	
82	Bernard O'Friel & Sons	1706 91	31,492.46	1706 91	31,365.26
82	Alexander & Longwell	639 20		512	
82	Michael Honan	29,146 35		29,146 35	
83	Dearmond, Rodearmel & Co.		6593 49		6593 49
84	Quinn & M'Laughlin		5555 87		5555 87
85	B. & A. Elliott	816 55	4444 78	689	4317 23
85	Bargy & Williamson	3628 23		3628 23	
86	M'Coy & Watts	207 35	5866 06	207 35	5866 06
86	Thomas M'Quoid & Co.	5658 69		5658 69	
87	M'Coy & Watts	653 66	7414 80	653 66	7252 91
87	Heney & Erwin	836 89		676	
87	James & John Sweney	5923 25		5923 25	
88	Byers, M'Coy & Co.	441 94	3749 58	441 94	3749 58
88	Ayers & Holmes	3307 64		3307 64	
89	M'Coy & Watts		4793 94		4793 94
90	Byers, M'Coy & Co.		4329		3520
91	Thomas M'Quoid	1315 13	3774 54	1263 70	2798 70
91	Philip Call	2459 41		1535	
92	Call & O'Friel		4187 46		3527
93	Michael Holman		720 10		586

FEEDERS.

Kishacoquillis	J. & J. Milliken	4404 75	4404 75
Delaware run	J. & C. Murray	676	676
Race at rope ferry	William Parsons	120	100
		$694,465 60½	$673,919 12½

JAMES CLARKE, Acting Commissioner.

Juniata Canal Office, Lewistown, December 5, 1829.

G.—A statement of estin lvania canal, and payments

Kinds of work.	Locat	s.	Amount paid.	
Dams.	At Jack's creek		225 58	
	Burr's		1415 01	
	Do and river lo		13,480 08	
	Do do		6787 00	
	North's island anc		15,747 00	
	Do		423 80	
	Do		4533 00	
		3 48		42,611 48
ls.	At Kish's feeder		2139 05	
	Jack's creek		5794 63	
	Lost creek	12½		
	Delaware run	701 52		
		770 00		
		791 00		
		916 00		
	North's island	950 00		
	·an's island	676 50		
	orth's islan	5150 00		
			17,017 64½	
	1. 38,39,	865 00		
	9	406 50		
		357 00		
		168 50		
		190 00		
		632 20		
			2619 20	
		600 00		
		2305 00		
		1300 00		
		200 00		
			4405 00	
		3600 00		
		204 00		
		50 00		
		4560 50		
		328 00		
		775 00		
		1374 60		
			10,892 10	
		5717 95		
		1062 05		
			6780 00	
			$272,069 89½	

cting Commissionor.

—A statement of estimates of the incidental work on the Juniata division of the Pennsylvania canal, and payments made thereon.

Kinds of work.	Location.	Contractor's Names.	Amount of estimates.		Amount paid.	
Dams.	At Jack's creek	Consaul, Yates & Magee	225 58		225 58	
	Burr's	Jonathan Leslie	1415 01		1415 01	
	Do and river lock	Guy, Criswell & Hart	13,480 08		13,480 08	
	Do do	Casper Dull, Jr.	7219 00		6787 00	
	North's island and do	Dearmond, Rodearmel & Co.	15,747 00		15,747 00	
	Do do	Peter Bargy, Jr.	425 80		423 80	
	Do do	Jonathan Leslie	4533 00	43,045 48	4533 00	42,611 48
Aqueducts.	At Kish's feeder	J. & J. Milliken	2139 05		2139 05	
	Jack's creek	Consaul, Yates & Magee	5794 63		5794 63	
	Lost creek	M. D. Wellman & Co.	6464 26		6464 26	
	Delaware run	Guy & Wilcox	6368 00		5061 00	
	Cocalamus creek	James S. Espy & Co.	6538 15		6538 15	
	Big Buffaloe	Do do	2765 00		2256 00	
	Do do	Jonathan Leslie	10,770 72		9771 00	
	Little Buffaloe	Guy, Johnson & Co.	3363 80		2695 00	
	Duncan's island	Moore & Winslow	23,115 80		23,115 80	
	Do do	William Le Baron	1060 00		900 00	
	Do do	Wm. & Michael Byrnes	3200 00	71,579 41	2667 92	67,384 81
Locks.	No. 0	Jonathan Leslie	768 70		698 70	
	0	Philip Roch	7128 00		6500 00	
	A and 1	Jonathan Leslie	11,415 00		10,301 00	
	2	Do do	4541 68		4369 00	
	3	Guy, Johnson & Co.	1784 35		1588 00	
	3	Marshall D. Wellman	3162 50		2930 00	
	4	M. D. Wellman	4125 90		3919 60	
	5	Pettit & Righter	347 81		278 00	
	5 and 11	Peter Bargy, Jr.	9629 81		9148 81	
	6 and aqueduct combined	Jonathan Leslie	10,916 03		9328 53	
	7 and 8	Guy & Wilcox	10,746 00		9474 00	
	9 and 10	James S. Espy & Co.	16,550 00		15,930 00	
	Guard lock, section 64	Nesbit, Schnabel & Co.	4313 90		3985 00	
	11	James S. Espy & Co.	126 00		100 00	
	12	Dearmond, Rodearmel & Co.	3804 98		3614 98	
	15	Moore & Winslow	2993 00	92,323 66	2395 00	84,360 62
Sluices.	At Burr's	Jonathan Leslie	2319 91		1880 00	
	Mifflin	David Lyles	450 00	2769 91	360 00	2240 00
Weirs.	Section 14	Thomas and James Moore	735 59		735 39	
	Do 17	Hawley and Twitchell	426 00		426 00	
	Do 28	J. and C. Murray	360 00		360 00	
	Do 58, 59, 70 and 72	Shuman and Lamberts	2239 50		2239 50	
	Do 75	Cooker and Miller	481 75	4242 44	481 75	4242 44
Heads.	At Lewistown	Miller and McClure	2049 00		2049 00	
	North's island	James S. Blaine	900 00	2949 00	900 00	2949 00
Culverts.	Section 18, 19, 21	Charles Shrinfer	136 50		110 00	
	Do 18, 19 and 21	Turbett and Wallace	861 00		690 00	
	Do 18 and 21	Michael Dunivan	2214 50		2214 50	
	Do 25	John Weaver and Co.	897 50		897 50	
	Do 28 and 29	Sternbugh and Cilley	1506 75		1506 75	
	Do 30	Hugh Toner	520 25		520 25	
	Do 33	Jonathan Leslie	539 75		539 75	
	Do 41	Guy, Johnson and Co.	1292 75		1292 75	
	Do 44	William Parsons	740 75		740 75	
	Do 47	Aitkin and Mathers	1013 35		1013 35	
	Do 46, 53, 73 and 88	Pettit and Righter	1791 50		1791 50	
	Do 56	Jacob Hoffman	752 50		752 50	
	Do 59 and 63	Pettit and Righter	2420 50		2420 50	
	Do 60	Stackpole and Stees	745 25		745 25	
	Do 69	E. Busserman	362 25		362 25	
	Do 79, 80 and 81	James and Daniel Johnson	3860 00		3860 00	
	Do 84 and 87	Emor Kimber	3128 50		3128 50	
	Do 85 and 91	Peter Bargy, Jr.	1350 50		1350 50	
	Do 89 and 90	Robert McCoy	2631 00	26,765 10	2631 00	26,567 60
Public Bridges.	Kish's feeder	J. and J. Milliken	906 50		861 50	
	Sec. 19, 20, 21, 22, 34, 35, 41, 42, 49 62	James Criswell and Co.	5332 00		4380 00	
	26	Jacob Bishop	762 00		610 00	
	60	Brought and Dunbar	502 00		502 00	
	70	E. Bosserman	758 12½		758 12½	
	74	Chauncey Mears	701 52		701 52	
	76	Wm. and Samuel Hunter	770 00		770 00	
	84	Dearmond, Rodearmel and Co.	791 00		791 00	
	91	Dearmond and Rodearmel	916 00		916 00	
	Tow path at North's island	Reuben Fields	1129 00		950 00	
	Do at Duncan's island	Benezer Hale	676 50		676 50	
	Rope ferry at North's island	Poole and Blaine	6278 75	19,525 39½	5150 00	17,017 64½
Farm Bridges.	Sec. 23, 25, 28, 30, 31, 38, 39, 41, 43, 50 53	James Criswell and Co.	1041 00		865 00	
	40, 45, 56 and 80	Elijah Leonard	406 50		406 50	
	47, 60 and 62	Bought, Sellers and Co.	411 00		357 00	
	60 foot	Elisha Hains	168 50		168 50	
	65 and 67	Robert Mitchell	190 00		190 00	
	78, 85, 87 and 88	Thomas and George Lambert	632 20	2849 20	632 20	2619 20
Lock Houses.	No. 1	David Reynolds	758 00		600 00	
	3, 4, 5, 6 and 7	William Sandoe	2700 00		2305 00	
	9 and 13	Tobias Krider	1400 00		1300 00	
	11 and 12	Miller and Evans	400 00	5258 00	200 00	4405 00
Roads.	Turnpike along section 7	Amos Farnham	3931 75		3600 00	
	Township do do 31, 32 and 33	Thomas Murphy	204 00		204 00	
	Do do do 47	J. W. Aitkin	50 00		50 00	
	Turnpike do do 53 and 54	Beaumont and Co.	4560 50		4560 50	
	Township do do 70	E. Bosserman	328 00		328 00	
	Do do do 73 and 85	Philip Brady	775 00		775 00	
	Do do do 76 to 83	Do do	1374 60	11,223 85	1374 60	10,892 10
	Fences	By 33 contractors	5717 95		5717 95	
	Castings	John Eberhart	1062 05	6780 00	1062 05	6780 00
				$289,307 44½		$272,069 89½

Juniata Canal Office, Lewistown, December 5, 1829

JAMES CLARKE, Acting Commissioner.

H.—A list of persons who are, and have been engaged in the engineer corps and canal office, their time of service and amount of wages, since December 1st, 1828, on the Juniata division of the Pennsylvania canal.

Names.	Office.	Commencing 1828.	Ending 1829.	No. of days service.	Per day.	Amount.
De Witt Clinton	Engineer	December 2	June 2	half year	$2000 pr an	$ 1,000
Alexander C. Twining	P. ast. engineer	do 1	January 31	62 days	3 50	217
Do do	do do	Jan. 31, 1829	June 8	128	4	512
Do do	Engineer	June 9	Decem. 9	half year	$2000	1,000
William H. Morell	P. ast. engineer	Nov. 30, 1828	June 10	192 days	4	768
Barent Schuyler	do do	do do	March 4	94	3 50	329
William Parker	Ast. engineer	Feb. 28, 1829	June 15	108	2	216
Do do	P. ast. engineer	June 15	Novem. 30	168	4	672
Frederick H. Petrie	do do	July 14	do	139	4	556
Charles F. Lebarron	Supt. carpentry	February 8	July 26	168	3	504
Do do	P. ast. engineer	July 26	Novem. 30	127	4	608
Bryce M'Dougal	Supt. masonry	April 1	do	244	3	732
John D. Tibbits	Ast. engineer	Nov. 30, 1828	April 30	151	2	302
Joseph Nilson	do	do do	July 12	224	2	448
Edward Watts	do	do do	Jan. 10	41	2	82
David L. Scott	do	Feb. 1, 1829	April 21	79	2	158
Isaac Gray	do	Nov. 30, 1828	June 10	192	2	384
Thomas O'Bryan	Rodman	do do	May 31	182	1 50	273
Do do	Ast. engineer	May 31, 1829	Novem. 30	183	2	366
George M. Totten	do	Nov. 21, 1828	do	376	2	752
Clarkson E. Taylor	do	May 6, 1829	do	209	2	416
Augustus F. Hinsch	do	November 30	May 15	166	1 50	249
Do do	do	May 15, 1829	Novem. 30	199	2	398
A. C. Baldwin	do	February 24	April 20	56	2	112
E. R. Livermore	do	April 21	June 16	56	2	112
Joseph Nesbit	do	July 24	Novem. 30	130	2	260
William Patrie	do	June 30	do	153	2	306
Theodore Franks	Draughtsman	Nov. 30, 1828	do	365	2	730
James G. Brown	Rodman	June 27, 1829	do	156	1 50	234
A. Boyd Hamilton	do	February 25	do	278	1 50	417
James W. Benbridge	do	Dec. 28, 1828	do	338	1 50	507
Martin Bell	do	November 30	May 13	164	1 50	246
William M. Patton	do	Mar. 28, 1829	Novem. 30	248	1 50	372
Joseph H. Bury	do	February 10	do	294	1 50	441
Samuel Kennedy	do	Nov. 30, 1828	June 2	184	1 50	276
Charles P. Shannon	do	Mar. 31, 1829	Novem. 30	245	1 50	367 50
George G. Hale	do	May 15	do	200	1 50	300
James Burnside	do	April 23	May 15	22	1 50	33
James Strawbridge	do	January 1	January 31	31	1 50	46 50
Do do	Axeman	Nov. 30, 1828	June 30	181	1	181
Edmund Hamlin	do	do do	August 31	243	1	243
John Murphy	do	do do	January 7	38	1	38
John Feite	do	do do	October 19	323	1	323
Samuel J. Cross	do	November 1	do 31	365	1	365
George Petrie	do	do 19	do 31	346	1	346
Robert Stockton	do	December 22	do 1	283	1	283
George Smith	do	Mar. 1, 1829	do 31	245	1	245
James Cooper	do	April 6	do 31	209	1	209
Charles H. Willower	do	Dec. 16, 1828	June 13	179	1	179
George W. Ash	do	Mar. 18, 1829	Septem. 24	190	1	190
J. M. Johnson	do	March 18	August 15	151	1	151
Daniel Switzer	do	June 15	Septem. 31	139	1	139
Richard M. Shaw	do	July 24	October 31	100	1	100
Caleb North	do	Dec. 1, 1828	Feb. 28	90	1	90
Christian Leas	do	July 7, 1829	Septem. 30	86	1	86
John H. Bolin	do	June 26	Septem. 4	71	1	71
Jonathan Bowls	do	May 15	July 23	70	1	70
John S. Cash	do	Dec. 1, 1828	January 31	62	1	62
Edward Power	do	do do	Septem. 31	62	1	62
John Scott	do	July 26, 1829	October 31	40	1	40
Timothy Hills	do	August 18	Septem. 25	37	1	37
Wm. Davidson	do	April 8	May 4	27	1	27
John Jackson	do	April 6	April 27	22	1	22
Wm. O'Bryan	do	June 1	June 20	20	1	20
James Cox	do	February 16	Feb. 28	13	1	13
John M'Carthy	do	April 29	May 2	4½	1	4 50
Wm. B. Mitchell	Surveyor, and 2 chain men.		April 17			68
						$19,366 50

Acting Commissioner, Supervisor, and Clerk's pay.

James Clarke	Act. commissioner			1 year		$ 1,095 00
Wm. B. Mitchell	Supervisor	12 October	Nov. 30, 1829	50 days	$ 2 50	125
James Taggart	Clark	Nov. 30, 1828	do do	365	3	1,095
						$21,681 50

JAMES CLARKE,
Acting Commissioner.

Juniata Canal office, Lewistown, December 5th, 1829.

By sundry payments on account, to contractors at the aqueduct at Duncan's island, the North's island dam, and river lock. assistant and supervisors, and other contractors not included in any of the above items. Because they are not adjusted for settlement by the accounting officers	9,175 50	
Cash on hand	905 72	
		1,386,846 42

JAMES CLARKE, *Acting Commissioner.*

Canal Office, Lewistown, December 5, 1829.

No. 1.

EASTERN DIVISION.

Report of John Forrey, Jr. upon the Eastern Division of the Pennsylvania Canal.

Harrisburg, Dec. 9, 1829.

To the Board of Canal Commissioners.

Gentlemen,—I beg leave to present to you my report on the eastern division of the Pennsylvania canal.

Paper No. 1. shews the amount of work done from Duncan's island to the mouth of Swatara, from the 1st of September, 1828, to the 25th of November, 1829.

No. 2, shews the amount of work done from the Swatara to Columbia, from the 1st day of May, to the 25th day of Nov. 1829.

No. 3, shews the contracts made by Wm. Wilson, Esq. superintendent, from the 3d day of November, 1828, to the 1st of June, 1829.

No 4, shews the contracts made by myself from the 10th June to the 9th day of November, 1829.

No. 5, exhibits a list of engineers and persons employed from the 10th of June, to the 2d Nov. 1829.

No. 6, shews the amount of damages paid and agreed to be paid during the year ending 2d Nov. 1829.

No. 7, shews the amount of work done from Duncan's island to the mouth of Swatara from the 25th of Nov. to this day.

No. 8, shews the amount of work done from the Swatara to Columbia during the same period.

No. 9, shews the amount of money paid for engineering and miscellaneous expenses from the 10th of June to the 9th December, 1829.

No. 10, shews the amount of certificates issued, the amount of moneys due on estimates, and the per centage retained.

For the estimated cost to complete the work now under contra on the Columbia line, and the estimate of the cost of the eig miles not yet under contract on the same line, together with th operations on the line from Clark's ferry to Middletown, I refe you to the report of E. F. Gay, Esq. the principal engineer, here with transmitted.

All which is respectfully submitted.

JNO. FORREY, Jun. A. C.

No. 2.

Report on the Eastern Division of the Pennsylvania Canal b Edwd. F. Gay, Engineer.

To the Board of Canal Commissioners of Pennsylvania.

GENTLEMEN :

I have the honour to submit the following report on th situation of the eastern division of the Pennsylvania canal, comprising the line between the Juniata and Swatara, and the lin extending from the Swatara to Columbia.

As soon as possible after my appointment by the board in Jun last, my attention was directed towards divising such plans a would ensure the immediate completion, and an introduction o the water into the line between the Juniata and Swatara.

As all the contracts on this section of the canal had been reported as complete, the principal *points* therefore, which presented obstacles to the introduction of the water, were defects in their original construction.

The level of the canal at Peter's mountain was laid very low, with a view of introducing the water as a feeder from the river at the Duncan's island dam, in consequence of which, if the embankments had been well constructed, the river would in time of freshets rise several feet higher than the water in the canal. But as the embankments were formed of such loose material as to admit the high water from the river, to flow through them and fill the canal so as to endanger the works; it was therefore thought advisable to build a regulating lock, near the lower end of the guard embankment, to protect the canal below, which measure was recommended to the board and adopted by them at their meeting in July last. The lock is now in progress, and will be finished in a few weeks.

The raising of the dam across the Susquehanna at Duncan's island, was completed about the 1st of October, and is at present in good order.

The embankments at the Red hill and Kittatinny required lining, particularly at the latter place; the removal of a large quantity of stone with which the bottom had been filled, and replacing them with earth, was necessary.

The sheetpiling and puddling of four waste wiers, the puddling of six culverts, together with the planking of the aqueduct at ishing creek, and the foot of the lock at Stoney creek, were reuisite.

The above repairs together with many others of minor imporance, consisting chiefly of lining, piling and puddling, were finhed, and the line filled with water about the 20th of August, rom which time (with the exception of about a week employed in epairing a breach,) the navigation continued uninterrupted until he 15th of October, when the water was drawn off for the purpose of commenceing the construction of the new regulating lock.

While the canal was navigable, nearly all of the stone mitreills in the locks were broken by the force of the water, occasiond by closing the gates at a time when a strong current was passng though the lock. Several of them have since been replaced ith wood, and the remainder will be during the winter. On rawing off the water, more extensive repairs were found necesary at Kittatinny and the Red hill, which, together with the lanking of lock No. 1, the alteration of the waste wiers at the arrisburg locks, and the rebuilding of a culvert, which failed ree miles below Harrisburg, have been done, and the canal is gain in good navigable order.

The sliding valve gates, which had been adopted on this divisn, for the purpose of filling and emptying the locks, proved exeedingly defective, especially when applied to lifts of 7 or 8 feet, which case the friction occasioned by opening them, required e most extraordinary exertions of the lock-keepers to perform e task, much inconvenience was also experienced from the freent repairs necessary to the machinery connected with them.— was therefore recommended to the acting commissioner to prore the lattice-valves, which are now in use, and are found fully answer the purpose for which they were designed.

An uncommon quantity of leakage along several of the embankents on the line, (owing it is presumed to their not having been arefully secured with puddle trenches) occasioned some difficulty keeping the levels full, while the canal was navigable in Sepmber; and as this part of the repairs has not yet been properly tended to, its security can be perfected during the present winr.

Several attempts were made in the months of July and August, repair the outlet locks at Middletown, which were in a *very bad* ondition, and I may add, had been *very badly* built, but as it was und difficult to procure a sufficient number of men to prosecute e work, at a time when the autumnal fevers prevailed, it was ostponed until the latter part of September, when with faurable weather, the work was recommenced and completed, nce which they have continued in good order, and have been uch used.

Notwithstanding, all the repairs and consequent expense incintal to this section of the canal, an early and uninterrupted navigation can be anticipated, during the coming year with a grea degree of certainty.

Appended to this report, is an estimate of the total amount o work necessary to complete that part of the line, now under contract, between the Swatara and Columbia, and also an estimate o the cost of the 8 miles, yet remaining to be put under contract.

The part under contract comprising in extent 10 miles, is necessarily a subject of extraordinary expense, as nearly the whol distance is constructed within the natural bank of the river, an composed of heavy embankment and vertical protecting wall.—The final cost of it will considerably exceed any estimate whic has heretofore been made on the line. Many causes have however combined to produce this result, among which the following are the principal :

1. Previous to the commencement of the work, the river ban along most of the sections, presented an appearance which promised an abundance of material of good quality, for all the purposes required ; but on many of the sections a front of rock appeared on removing the surface, which rendered the procuring of embankment from a distance, an item of serious expense.

2. A very large amount of lining is necessary on the whole line which was not returned in the report of last year, and therefor adds materially to the cost of the present.

Notwithstanding the expense attending the construction of th part of this line now under contract, the work has progressed during the past season as rapidly as could be desired, in consistenc with its safety. The amount of work done, does much credit t the industrious perseverance of the contractors, in prosecutin their different sections, nearly all of which will be completed a early as the 1st of June 1830.

That part of the line which is not at present under contract passes for the whole distance over ground which offers great facilities for its construction, and if contracted for during the presen winter, the whole line can be finished by the 1st of December 1830.

For the delay which has occurred in presenting this report, would respectfully entreat the indulgence of the board, as it wa occasioned by the negligence of one of my assistants, who ha been repeatedly directed to prepare the necessary calculations o his line. But on the day in which the returns were to have been made, his resignation was received, a very limited time was therefore allowed to prepare the estimates, which are herewith

Very respectfully submitted,

EDWD. F. GAY, *Engineer.*

Harrisburg, December 8, 1829.

ara, from the 1st *day of December,* 1828, *to the first*
n Forrey, jr. acting commissioner, until November

ude sums paid for per centage previously retained.

	Am't of work done	Amount	Per cent-

eous.

vigation can be anticipated, during the coming year with a grea degree of certainty.

Appended to this report, is an estimate of the total amount o work necessary to complete that part of the line, now under contract, between the Swatara and Columbia, and also an estimate o the cost of the 8 miles, yet remaining to be put under contract.

The part under contract comprising in extent 10 miles, is necessarily a subject of extraordinary expense, as nearly the whol distance is constructed within the natural bank of the river, an composed of heavy embankment and vertical protecting wall.— The final cost of it will considerably exceed any estimate whic has heretofore been made on the line. Many causes have however combined to produce this result, among which the followin are the principal:

1. Previous to the commencement of the work, the river ban along most of the sections, presented an appearance which promised an abundance of material of good quality, for all the purpose required; but on many of the sections a front of rock appeare on removing the surface, which rendered the procuring of embankment from a distance, an item of serious expense.

2. A very large amount of lining is necessary on the whole lin which was not returned in the report of last year, and therefor adds materially to the cost of the present.

Notwithstanding the expense attending the construction of th part of this line now under contract, the work has progressed during the past season as rapidly as could be desired, in consistenc with its safety. The amount of work done, does much credit t the industrious perseverance of the contractors, in prosecutin their different sections, nearly all of which will be completed a early as the 1st of June 1830.

That part of the line which is not at present under contrac passes for the whole distance over ground which offers great facil ties for its construction, and if contracted for during the preser winter, the whole line can be finished by the 1st of Decembe 1830.

For the delay which has occurred in presenting this report, would respectfully entreat the indulgence of the board, as it wa occasioned by the negligence of one of my assistants, who ha been repeatedly directed to prepare the necessary calculations o his line. But on the day in which the returns were to have bee made, his resignation was received, a very limited time was therefore allowed to prepare the estimates, which are herewith

Very respectfully submitted,

EDWD. F. GAY, *Engineer.*

Harrisburg, December 8, 1829.

lar statement of work done on the eastern division of the Pennsylvania canal, from Duncan's island to the mouth of the Swatara, from the 1st day of December, 1828, to the first of June, 1829, under charge of William Wilson, superintendent, and from the 9th day of June, 1829, under charge of John Forrey, jr. acting commissioner, until November , 1829.

N. B. Those payments marked ‡ include sums paid for per centage previously retained.

No. of section.		Names of Contractors.	Cubic Yards.					Perch wall.	Miscellaneous.	Am't of work done through the year.	Amount paid	Per centage retn'd or amt's yet due.
			Earth	Hard-pan.	Rock	Emb't	Puddling.					
1	Canal	O. H. Dibble			1769	57598		24397	141 rods of road	33458 50	$36807 80	2610 10
	New channel	Abbot Green								1250	1312 50‡	
	Dam	Green and Cameron	750			227		600	2250 perches of rubble stone, timber under abutments $500	28 9 11	5614 96‡	
	Sluice at the dam	Abbot Green						1180		885	885	
	Rebuilding dam	do						590	5577½ do delivered and placed	5056 12	5056 12	
	Guard lock	M. Byrne, Provest & Co.							Wall erected and materials	8394 60	9027 60‡	
	Sundry jobs	Abbot Green								317 48	317 43	
2	Canal	Green & Moore	1050		2460	38273		16384	160 perches turnpike	31998 59	27562 22	
	Bridge	do						454	Woodwork $172 50	1110 50	1110 50	
3	Canal	Dibble and Brackett	2959	6569	6760	17754		1840		8694 68	12274 95‡	
	New guard lock	W. & M. Byrne						-	Materials	1225	980	245 00
	Road	O. H Dibble		1638				2760	138 rods turnpike	6011 40	6791 40‡	
4	Canal	Jonathan Leslie	2655	2124	58	1646	500	116		968 98½	1508 01‡	
to 20	Bridges No. 1 to 12	Beaumont, M'Cord & Canfield							Work and materials	554 20	755 88‡	
5	Canal	Anderson, M'Namee & Co.									57 65‡	
	Lock No. 1	Isaac M'Cord						500	Gate $675	2675	2575	
9	Canal	O. H. Dibble	8260		16661	8300		6700		11450 80	12095 51‡	
	Aqueduct	W. & M. Byrne, Provest & co						650	Materials $850	4700	4465 ‡	534 25
	do	Wallace & Blair	36				575	28		140 20	140 20	
13	do and lock No 2	Christian Gleim				6583	1957	2471		5113 11	5113 11	
	Lock No. 2	Hodge & Guy	345			5212	362	695	Gates $450	915 78	2075 49‡	
	Waste wier roadway &c	Peter Miller	3500						968 per. stone and 40 sq. yds paving Cutting a groove $16	1706	1706	
	Lock house	Jacob & Isaac Updegrove							Work and materials	500	500	
13	Aqueduct	P. Provest & M. Byrne						1314	Tenders $45	1050 95	8489 95‡	
14,15	Canal	Beaumont & Co.	2000		5821	4635	12618		Grubbing $80	9725 29	13885 45‡	
	Turnpike and railing	do						3000	112 per. turnpike and 728 pan. railing	4898 80	4898 80	
18	Lock house	Jacob and Isaac Updegrove							Work and materials	500	500	
	Lock No 3	Hodge and Guy										371 65
28	Lock house	Samuel Holman							do do	539 37	539 37	
	Painting do	Newberry and Gemberling							do and paint	59	59	
32	Lock house	Samuel Hollman							do and materials	498 32	498 32	
	Aqueduct	Beaumont and Co.							Plank and timber	84 20	100 80‡	
	Bridge	Samuel Hollman							Work	84	84	
37	Fence	Michael Frantz							53 pannel	38 45	38 45	
47	do	M. Niesly							216 do	162	162	
	Regulating lock	Thomas English							Painting gates and puddling	48	48	
	Out-let lock	A. L. Beaumont and Co								8241 35	8659 45‡	489 37
6,29,30	Bridges No 7, 22 & 23	Thomas Wallace	–			176		275	228 square yards paving	447 14	447 14	
	Wrought iron	Joel Bailey								504 22	504 22	
	Cast do	J. S. Wiestling								26 60	26 60	

Along the line	Repairs	Contractors—Daniel Stine	1256 27	1256 27	
do	do	Thomas Wallace	2960 17½	2 60 17½	
do	do	Abraham Weltmer	544 27	344 27	
do	do	Thonas Elliott	638 53	638 53	
do	do	David Shepard	1797 47	1797 47	
do	do	John List	122 95	122 95	
do	do	William Willis	141 25	141 25	
do	do	George Schott	17	17	
do	do	Hugh M'Ilwaine	445 73	445 73	
Section No. 13	Repairs at Aqueduct,	Byrne, Provest & Co.	67	67	
14, 15	do of the banks	Joseph Corbett	62	62	
16,	Building a foot bridge	William Davidson	45	45	
16,	Repairs at culvert	Beaumont & Co	394	394	
Near ditto	Repairs and making a drain	George Livingston	46 80	46	
Sections 18, 28, 29, 32	Raising gates at locks Nos. 3, 4, 5, 6	Jacob Updegrove	60	60	
	Making a drain	do	3	3	
Section No. 18	Repairs at lock No 3	Byrne, Provest & Co.	88	88	
	Clay for puddling	John Dowling	89 62	89 62	
do 50	Painting railings	Charles Gamberling	20	20	
do 43	Repairs at bridge No. 38	James Mason	92	92	
do 47	Repairs at the outlet lock	Richard Hogan	206 96	206 96	
do do	do of the banks	Thomas C. Reed	48 27	48 27	
do do	do at waste gate	James Finigan	11 75	11 75	
do do	Removing part of temporary dam in basin	D. Fishburn	5 12	3 12	
do do	Repairs at outlet locks	Charles Blanchard	501 93	501 93	
Section Nos. 9 and 18	Materials for locks No. 2, 3	William Bell	15 37	15 37	
do 50	Copper pipe instead of culvert	Henry Beader	150	150	
Along the line	Repairs	Rudolph Miller	31 35	51 35	
do	do	Jacob Rinehard	44 25	44 25	
do	do	Benjamin Zerger	31	31	
At pier head near Duncan's island	Filling in	John Martin	33 50	33 50	
Along the line	Repairs	George Hamman	245 41	245 41	
		MISCELLANEOUS.			
For Var's locks	Valve gates on Seymours & Langford's plan & pattent	Seymours and Langford	1476	341 64	1134 36
do	4 wicket gates on King and Livingston's plan & patent	King and Livingston	64	64	
	Cement for new guard lock	W. & M. Byrne	340 40	340 40	
	do for repairs	W. Byrne	159	159	
	Lime for repairs	D. M'Conaughy	10 50	10 50	
	Spikes for do	Alexandrew Graydon	8 50	8 50	
	Chains and nails for repairs	Martin Buehler	8 70	8 70	
	Other irons for do	Joseph Levy	21 75	21 75	
	A scow for do	Samuel Hopkins	27	27	
	A boat for do	Abbot Green	40	40	
	Wetar carriage and hauling of wicket gates, cement, &c.	D. Shupp, S. Strob & Carlisle & Humphreys	15 50	15 50	
			169,068 02	193,722 88¼	5385 93

Statement of work done on the old line of the Eastern Division of the Pennsylvania Canal, from Clark's ferry to the mouth of the Swatara, by repairs, agreeably to proven accounts received at the office of John Forrey, jr. acting commissioner, from the 25th day of November to the 9th day of December 1829.

Names of contractors	Amount of work done and paid for.
William Bell	$ 253 70
John Collins	782 38
Charles Blanchard	537 64
Hopstill B. Blanchard	532 16
Rudolph Miller	58 92
David Sheperd	559 05
	$2,629 83

Tabular statement of work done on the eastern division, from the mouth of the Swatara to Columbia, agreeably to returns of the Engineers, received at the office of John Forrey, jr. acting commissioner, from the 25th of November to the 9th of December, 1828.

No. of sections.	Names of contractors.	Cubic yards. Earth.	Embankment	Puddling.	Slate.	Rock.	Perches. Vertical Wall.	Prov. Stone.	Square yards. Inner Slope Wall.	Miscellaneous.	Amount of work done	Amount paid.	Per centage retained.	Amount yet due.
3	Simon Cameron	1560				200					257 60	207	50 60	
4	A. & H. Stewart	300	100			480					299 20	240	59 20	
6	Holmes, Beaumont & Leach	88	818	1335	44		801	105			1061 51	850	211 51	
8	Rodgers, Fielding & M'Nair, jr.	885	1138	1315	225		926	719			1353 30	1083	270 30	
9	Moore, Green & Barber	726		1780			2080	2576			3044 15	2436	608 15	
11	Joseph M'Kinley					1002			583		646 75	520	126 75	
12	Allen & Shott			150							28 12	23	5 12	
13	Do do		1400								350	280	70	
15	Curran & Dougherty	253		1296			200				294 70		58 70	236 00
16	John Ekel	1145	1528	1836							919 72		182 72	737 00
Upper end of 18	Evans, Moore, Green & Barber	638	5000	500		39		242			1355 92		270 92	1085 00
Lower do do	Do do do	2377	191	2419			502	606			1641 37	1313	328 37	
35	Beaumont & Leach	8482	10,462			300	1166	1569			4972 88	3980	992 88	
36	O. H. Dibble	4752	2545	3200			694	694	720		4199	3360	839	
Bridge on 13	Maize & Johnson									Materials and work	200	160	40	
Culvert on 15	Do do									Do do	355	284	71	
		21,206	23,042	13,831	269	2021	6369	6509	1303		20,979 09	14,736	4185 02	2058 00

Tabular statement of work done on the eastern division of the Pennsylvania canal, from the mouth of the Swatara to Columbia, from the 1st day of May, 1829, (when this part of the division was commenced) to the first day of June, 1829, under charge of W. Wilson, superintendent, and from the 9th day of June, 1829, to the 25th day of November, 1829, under charge of John Forrey, jr. acting commissioner.

Sections.	Names of contractors.	Grub. and clearing.	Cubic yards. Earth.	Embank't.	Hardpan	Puddling.	Slate.	Rock.	Perches. Vert. Wall.	Slope Wall	Providing Stone.	Sq. yards Inner Slopewall	Miscellaneous.	Amount of work done.	Amount paid.	Per centage retained.	Amount yet due.
3	Brought & Bonsell	$200												$200 00	160 00	forf't. 40 00	
4	Alexander & Hugh Stewart	100	5275	4407				2135		2267			60 rods of road	3252 36	2599 22	653 14	
5	Henry W. Snyder	200		8560		2084	963		5706		6538			8435 80	6756 00	1679 80	
6	Holmes, Beaumont & Leach	100	2095	12158		885	256		6532		7250			10,747 35	8640 36	2106 99	
7	Bull & Cameron	200	5778	13393	438	3266			5712		7462		41 rods of road	12,351 69	9948 01	2403 68	
8	Rodgers, Fielden & M'Nair, jr.	300		27551		1322	1773		11924		12851			15,401 15	12,320 72	3080 43	
9	Moore, Green & Barber	150		33553		3570			6070		10284			18,195 10	14,552 80	3642 30	
11	Joseph M'Kinley	200	1898	8020	1748			3793				264		3923 88	3139 60	784 28	
12	Allen & Schutt	100	15784	2595	398			300					15 perches of masonry	2266 32	1815 08	451 24	
13	Do do	30	8202	10673	2544			500						3754 29	2985 00	769 29	
14	Rodgers, Fielden & Nagel	100	4651	12722										3861 8.	3090 10	771 77	
15	Curran & Dougherty	40	3658	11215	297				2131		2331			4291 29	3435 47	855 82	
16	John Ekel	100		22035		4124			11549		11549			16,130 70	12,904 40	3226 30	
17	Bangs, Philips, Roberts & Co.	100	1296	27341		1266		2800	10954		8154			16,791 93	13,433 39	3358 54	
Upper end of 18	Evans, Moore, Green & Barber	75		23048		2044		2116	7148		6733			13,801 44	9562 18	2759 26	1480 00
Lower do do	Do do do	75	325	26318		2222		4237	7771		3534			14,986 63	11,991 00	2995 63	
35	Beaumont & Leach		14145	78498		10225		2403	18448		31272			51,897 40	41 478 25	10,419 15	
36	O. H. Dibble		13827	82048		6830			13904		23373			43,235 88	34,582 00	8653 88	
Calverts on sect. 12	George Schott												90 perches of masonry	270 00	270 00		
Do 13	Maize & Johnson												Materials and work	770 00	620 00	150 00	
Do 35	A. L. Beaumont												Do do	216 00	172 80	43 20	
Bride on section 14	Maize & Johnson												Do do	300 00	240 00	60 00	
Removing a rock in the boat channel of Susq. opposite 35	John Enney													50 00	50 00		
		2070	76,934	404,135	5425	37,838	2994	18,284	107,959	2267	131,331	264		245,131 02	194,746 38	48,904 64	1480 00

JOHN FORREY, Acting Commissioner.

nsylvania canal, from
sland to the mouth of t

e to the old line of said division,

day.

For each team with 2 horses and driver.	For each team with 3 horses and driver.	F w

er foot superficial 75 cents, sheet piling,

ation of earth 17 cents per cubic yard,

ood work and painting $ 100, coping 75

estimate of engineer, dry walls at the

List of contracts made on behalf of the state by William Wilson, superintendent on the Eastern division of the Pennsylvania canal, from the 3d day of November, 1828, to the 1st day of June, 1829, relative to the old line of said divisio
extending from Duncan's island to the mouth of the Swatara.

Dates of contracts.	Names of contractors.	Kinds of work.	Wages per day.							
			For contractors own services.	For each labourer.	For each carpenter.	For each horse, cart, and driver.	For each team with 2 horses and driver.	For each team with 3 horses and driver.	For each team with 4 horses and driver.	
1828, Nov. 7	Byrne, Provest & Co.	Aqueduct across Clark's creek								Wood work $ 4 per foot lineal, stone work $ 3 75 per perch, coping per foot superficial 75 cents, sheet pili planking and pumping, estimate of engineer.
do 11	O. H. Dibble	Culvert on section No. 7								Slope wall $ 1 50 per perch, puddling 20 cents per cubic yard, excavation of earth 17 cents per cubic ya rock 50 cents per cubic yard.
do 11	A. L. Beaumont & Co.	Bridge over out-let lock on sect. 47, at Middletown								Stone work $ 2 50 per perch, embankment 15 cents per cubic yard, wood work and painting $ 100, coping cents per foot lineal, piling, pumping, planking, and bailing, at the estimate of engineer, dry walls at locks $ 1 75 per perch.
do 26	Samuel Witzell	Fence of locust posts on section No. 24, 10 feet long each pannel								At 75 cents per pannell.
do 28	Jacob Rinehard	A pump, repairing same, and fixing troughs								$ 9 50.
do 28	John Dowling	Clay for puddling								12½ cents per load.
Dec. 12	Martin Neisley	Fence on section No. 46, locust posts and pine rails, each pannel 10 feet long								At 75 cents per pannell.
do 16	Thomas Wallace	Altering tow path at bridges Near Harrisburg And building a wall at bridge No. 7.								75 cents per perch in bridge No. 22 $ 1 75 do do do No. 23 $ 1 00 do do do No. 7. } Paving 12½ cents per square yard, embankment 15 cents per squ yard.
do 29	do do	Building a wall at the head culvert on section No. 29								$ 1 75 per perch.
do 31	Samuel Holman	Bridge on section No. 37, at Neisleys								$ 84 00.
do 31	Daniel Stine	Repairs	$ 1 25	$ 1 00		$ 1 50	$ 2 50		$ 4 00	
1829, Jan. 1	Peter Miller	Forming a new road at lock No. 2								Inside slope wall $ 1 50 per perch, paving 15 cents square yard, groove at estimate of engineer, embankm 17 cents per cubic yard, stone work under the wiers $ 1 per perch.
do 1	Abbot Green	Raising the sluice at the dam at Clark's ferry								Wood and iron work $ 25, stone at 75 cents per perch.
do 1	Greene & Moore	Timber for foundation at pier head at Duncan's island								$ 500.
do 1	Byrne, Provest & Co.	Repairing aqueduct on section 16 and lock No. 3								$ 67 for the aqueduct, and $ 88 for the lock.
do 7	A. L. Beaumont	Railing along the road, wall on section 14 and 15								$ 2 10 per pannel.
Feb. 10	Samuel Holman	Planking at Kittatining narrows								$ 2 16½ per foot lineal.
do 11	A. L. Beaumont	Repairs	1 25	1 00		1 50	2 00			$ 36 96 for pumping and repairs of pump.
do 12	Christian Gleim	Wall, embankment, puddling, and forming road at the aqueduct on section No. 13								Wall $ 1 25 per perch, embankment 22 cents per cubic yard. Puddling 30 cents per cubic yard. } Road at estimate of engineer.
do 12	A. L. Beaumont	Coping at bridge No. 5 do do 7								75 cents per cubic foot. 70 do do
do 14	Greene & Moore	Bridge on section No. 2								$ 2 per perch stone work, $ 2 75 per foot lineal, for wood work, painting and iron work at estimate of en
March 4	Wallace & Blair	Puddling &c. at aqueduct, section No. 9								Puddling 20 cents per cubic yard, excavation 12 cents per cubic yard, wall 75 cents per cubic yard.
do 5	Abbot Green	Planking head of the guard lock, and erecting an embankment for protection of the works	1 25		$ 1 50	1 50		$ 3 00		Timber 6 cents per foot lineal, other materials at estimate of engineer.
April 1	Joseph Corbett	Excavation of ditches, cleaning out, and filling in old drains on section No. 15 & 16								10 cents per cubic yard.
do 1	do do	Repairing bridge and building culvert								$ 15.
do 2	A. L. Beaumont	Excavating foundation of aqueduct, pit, &c. on section No. 32								Excavation 20 cents per cubic yard, plank for bottom at $ 10 per mile, puddling 25 cents per cubic y timber at $ 4 per hundred feet lineal.
do 11	Wm. Willis	Repairs	1 00			1 50				
do 11	David Shepard	Do	1 25	1 00		1 50	2 00			
do 25	Richard Hogan	Repairs on the canal and locks section No. 47	1 00	1 00		1 50				$ 1 50 per day for the use of a flat, repairs of tools $ 1 67, for plank $ 8 79.
do 27	Abm. Weltner	Repairs on the canal.	1 25	1 00		1 50				Boards $ 7 96, tar to pitch aqueduct section 32, $ 1 50 for ferrying sand across the Swatara, $ 1 50.
May 12	O. H. Dibble	Section No. 1								Rock excavation $ 1 25 per cubic yard.
do 21	A. Cardon	Fence on section No. 1, 2, & 3								$ 1 80 per pannel.
do 22	Michael Frantz	Fence on section No. 37								75 cents per pannel if locust posts, and 60 cents if walnut posts.
do 22	Abbot Green	Making turnpike road on section No. 2								$ 10 per rod lineal, including culverts.
do 24	James Mason	Rebuilding abutment bridge, section 43, and putting up the bridge								$ 90.
do 28	Christ Hamacker	Repairing upper chamber of out-let lock on sect. No. 47								$ 677 18 inclusive of materials.
do 30	Samuel Holman	Filling around toll house No. 4, building culv. at lock house No. 5, building toll bridge and making fence								$ 40.

Relative to the new line from the mouth of the Swatara to Columbia.

May 12	A. L. Beaumont	Culvert at the tail-race of Haldeman's saw mill, on section 75	$ 2 75 per perch, planking at $ 15 per thousand feet board measure, inclusive of the workmanship and all timber.

JOHN FORREY, Jr. *Acting Commissioner.*

lvania canal, from June 10th of said division, extending
mouth of the Swatara.

ach team 2 horses driver.	For each mason.	For each stone cutter and carpenter		

No. 5.

List of contracts made on behalf of the state by William Wilson, superintendent on the Eastern division of the Pennsylvania canal, from the 3d day of November, 1828, to the 1st day of June, 1829, relative to the old line of said divisi
extending from Duncan's island to the mouth of the Swatara.

Dates of contracts.	Names of contractors.	Kinds of work.	Wages per day.							
			For contractors own services.	For each labourer.	For each carpenter.	For each horse, cart, and driver.	For each team with 2 horses and driver.	For each team with 3 horses and driver.	For each team with 4 horses and driver.	
1828, Nov. 7	Byrne, Provest & Co.	Aqueduct across Clark's creek								Wood work $ 4 per foot lineal, stone work $ 3 75 per perch, coping per foot superficial 75 cents, sheet p planking and pumping, estimate of engineer.
do 11	O. H. Dibble	Culvert on section No. 7								Slope wall $ 1 50 per perch, puddling 20 cents per cubic yard, excavation of earth 17 cents per cubic rock 50 cents per cubic yard.
do 11	A. L. Beaumont & Co.	Bridge over out-let lock on sect. 47, at Middletown								Stone work $ 2 50 per perch, embankment 15 cents per cubic yard, wood work and painting $ 100, copi cents per foot lineal, piling, pumping, planking, and bailing, at the estimate of engineer, dry walls locks $ 1 75 per perch.
do 26	Samuel Witzell	Fence of locust posts on section No. 24, 10 feet long each pannel								At 75 cents per pannell.
do 28	Jacob Rinehard	A pump, repairing same, and fixing troughs								$ 9 50.
do 28	John Dowding	Clay for puddling								12½ cents per load.
Dec. 12	Martin Neisley	Fence on section No. 46, locust posts and pine rails, each pannel 10 feet long								At 75 cents per pannell.
do 16	Thomas Wallace	Altering tow path at bridges Near Harrisburg And building a wall at bridge No. 7.								75 cents per perch in bridge No. 22 $ 1 73 do do do No. 23 $ 1 00 do do do No. 7. } Paving 12½ cents per square yard, embankment 15 cents per s yard.
do 29	do do	Building a wall at the head culvert on section No. 29								$ 1 75 per perch.
do 31	Samuel Holman	Bridge on section No. 57, at Nelsleys								$ 84 00.
do 31	Daniel Stine	Repairs	$ 1 25	$ 1 00		$ 1 50	$ 2 50		$ 4 00	
1829, Jan. 1	Peter Miller	Forming a new road at lock No. 2								Inside slope wall $ 1 50 per perch, paving 15 cents square yard, groove at estimate of engineer, embanl 17 cents per cubic yard, stone work under the wiers $ 1 per perch.
do 1	Abbot Green	Raising the sluice at the dam at Clark's ferry								Wood and iron work $ 25, stone at 75 cents per perch.
do 1	Greene & Moore	Timber for foundation at pier head at Duncan's island								$ 500.
do 1	Byrne, Provest & Co.	Repairing aqueduct on section 16 and lock No. 3								$ 67 for the aqueduct, and $ 88 for the lock.
do 7	A. L. Beaumont	Railing along the road, wall on section 14 and 15								$ 2 10 per pannel.
Feb. 10	Samuel Holman	Planking at Kittatining narrows								$ 2 16¼ per foot lineal.
do 11	A. L. Beaumont	Repairs	1 25	1 00		1 50	2 00			$ 36 96 for pumping and repairs of pump.
do 12	Christian Gleim	Wall, embankment, puddling, and forming road at the aqueduct on section No. 13								Wall $ 1 25 per perch, embankment 22 cents per cubic yard. Puddling 30 cents per cubic yard. } Road at estimate of engineer.
do 12	A. L. Beaumont	Coping at bridge No. 5 do do 7								75 cents per cubic foot. 70 do do
do 14	Greene & Moore	Bridge on section No. 2								$ 2 per perch stone work, $ 2 75 per foot lineal, for wood work; painting and iron work at estimate of
March 4	Wallace & Blair	Puddling &c. at aqueduct, section No. 9								Puddling 20 cents per cubic yard, excavation 12 cents per cubic yard, wall 75 cents per cubic yard.
do 5	Abbot Green	Planking head of the guard lock, and erecting an embankment for protection of the works	1 25		$ 1 50	1 50		$ 3 00		Timber 6 cents per foot lineal, other materials at estimate of engineer.
April 1	Joseph Corbett	Excavation of ditches, cleaning out, and filling in old drains on section No. 15 & 16								10 cents per cubic yard.
do 1	do do	Repairing bridge and building culvert								$ 15.
do 2	A. L. Beaumont	Excavating foundation of aqueduct, pit, &c. on section No. 32								Excavation 20 cents per cubic yard, plank for bottom at $ 10 per mile, puddling 25 cents per cubic timber at $ 4 per hundred feet lineal.
do 11	Wm. Willis	Repairs	1 00			1 50				
do 11	David Shepard	Do	1 25	1 00		1 50	2 00			
do 25	Richard Hogan	Repairs on the canal and locks section No. 47	1 00	1 00		1 50				$ 1 50 per day for the use of a flat, repairs of tools $ 1 67, for plank $ 8 79.
do 27	Abm. Weltner	Repairs on the canal.	1 25	1 00		1 50				Boards $ 7 96, tar to pitch aqueduct section 52, $ 1 50 for ferrying sand across the Swatara, $ 1 50.
May 12	O. H. Dibble	Section No. 1								Rock excavation $ 1 25 per cubic yard.
do 21	A. Carlon	Fence on section No. 1, 2, & 3								$ 1 80 per pannel.
do 22	Michael Frantz	Fence on section No. 37								75 cents per pannel if locust posts, and 60 cents if walnut posts.
do 22	Abbot Green	Making turnpike road on section No. 2								$ 10 per rod lineal, including culverts.
do 24	James Mason	Rebuilding abutment bridge, section 43, and putting up the bridge								$ 90.
do 28	Christ. Hamacker	Repairing upper chamber of out-let lock on sect. No. 47								$ 677 18 inclusive of materials.
do 30	Samuel Holman	Filling around toll house No. 4, building culv. at lock house No. 5, building toll bridge and making fence								$ 40.

Relative to the new line from the mouth of the Swatara to Columbia.

May 12	A. L. Beaumont	Culvert at the tail-race of Haldeman's saw mill, on section 75	$ 2 75 per perch, planking at $ 15 per thousand feet board measure, inclosive of the workmanship and all timber.

JOHN FORREY, Jr. *Acting Commissioner.*

of the Pennsylvania ca

es of tract	ch team 2 horses driver.	For each mason.	For each stone cutt and carper
9, 0	2 00	$1 50	
		1 55	$ 1
			1
		1 50	

vem

Aug

contract

Total amount necessary to complete the division $260,144 86

EDW'D. F. GAY, *Engineer.*

No. 6.

st of contracts made on behalf of the state, by John Forrey, Jr. acting commissioner on the Eastern division of the Pennsylvania canal, from June 10th until November 2d, 1829 inclusive, relative to the old line of said division, extendi from Duncan's island to the mouth of the Swatara.

ates of contracts.	Names of Contractors.	Kinds of work.	Wages per day.							
			For contractors own services.	For each labourer in water.	For each labourer out of water.	For each horse, cart, and driver.	For each team with 2 horses and a driver.	For each mason.	For each stone cutter and carpenter	
29, June 10	W. Willis	Hauling street dirt on canal banks	$ 1 50							
do 19	Newberry & Gemberling	Painting toll house at Harrisburg, and one at Reutter's mill								$ 59 for both.
do 19	James Mason	Bracing up one of the abutments of bridge No. 38, on section No. 13								$ 2 00.
do 19	Jacob Updegrove	Planking aqueduct on section No. 16								$ 394 including materials.
		Raising gates at locks No. 3, 4, 5, and 6								$ 60.
		Making a drain near Kremer's								$ 3.
do 27	David Sheppard	Repairs	1 25	$ 1 00	$ 90	$ 1 50	$ 2 00			
do 29	John Horselbach	Spreading street dirt on canal banks								88 cents.
do 29	Thomas Wallace	Repairs	1 25	1 00	90	1 50	2 50			
July 6	Hugh M'Ilwaine	Do	1 25	1 00	95	1 50				$ 1 50 per day for a scow.
do 9	Daniel Stine	Do	1 00		90	1 50		$ 1 50		$ 1 00 per perch of stone.
do 11	Thomas C. Reed	Do			90					Pumps at expense of state.
do 11	do do	Repairs under the bridge at the basin near Portsmouth								$ 9 24 for work and materials.
do 11	Cornelius Baskins	Repairs	1 00		90					
do 11	do do	Remove coffer dams out of the guard lock, pit at Clark's ferry, building a towing path bridge over it, remove stone from canal entrance, and a dam from across the canal above the said lock								$ 267.
do 27	William Bell	For a bridge near the Dauphin tannery								$ 1 94 per perch of masonry, 22 cents per cubic yard embankment, and 12½ cents for excavation.
do 28	Abbut Green	Rebuilding dam at Clark's ferry								25 cents per perch for removing stone from the old dam, 75 cents per perch for stone in new dam, 40 ca per perch for paving surface, $ 1 per perch for coping.
do 29	W. & M. Byrne	New guard lock on section No. 8								$ 1000 for the wood and iron work, excepting the small valve gates, $ 2 87½ per perch for stone work, cents per cubic yard for embankment and puddling, $ 2 30 per barrel of cement of 4 bushels each, liverable at lock.
August 1	Jacob Updegrove	Carpenter work at locks No. 1, 2, and 3							$ 2 ‡ 1 50‡	‡ for each stone cutter ‡ for each carpenter } Materials, smithing, and hauling at expense of state.
do 1	W. W. Pennell	Carpenter at public works near Harrisburg	1 50						1 50	Do do do do do
do 1	Richard Hogan	Repairs	1 00		1 00	1 50				
do 3	Thomas Elliott	Repairs at out-let locks	2 00						2 00	Do do do do do
do 7	Seymour & Langford	36 iron lattice gates for locks								$ 41 each.
do 12	John List	Repairs	1 00		90	1 50				
do 15	King & Livingston	4 wicket gates for lock No. 5								$ 16 each.
do 16	Thomas Wallace	Repairs						1 50		Materials at expense of state, $ 12 for the use of a boat, $ 15 for 6 wheel barrows, $ 6 for 6 shovels, a $ 3 for 2 picks.
do 17	George Livingston	Do			90					
do 17	Jacob Updegrove	Repairs of sundry waste wiers and gates								$ 59 23.
		15 bridge rolers								$ 11 25.
do 18	Samuel Renshaw	Hauling a boat part of the way from the river to the canal								$ 2 50.
do 28	Thomas Elliott	Building a towing path bridge on section 47	1 50					1 50		Materials at expense of state.
do 31	John Collins	Repairs	1 25		90					$ 2 81 for use of canal utensils, and repairs of the same.
Sept. 12	Charles Blanchard	Do	1 25‡	1 00						‡ and $ 1 25 for son per day $ 1 55 for self and son, per night $ 1 30 for each hand, per night } Materials at expense of state.
do 19	D. Pishburn	Removing part of dam in basin on section 47								$ 3 12.
do 23	James Finigan	Repairing waste gate on section 47			1 00					Materials at expense of state.
do 30	Joseph Levy	Irons for repairs								$ 21 75.
October 1	C. Gemberling	Painting tow path railings								$ 20 including materials.
do 1	W. Byrne	100 barrels of cement, deliverable at Portsmouth								$ 1 59 per barrel of 3 bushels each.
do 2	David Shepard	Repairs	1 00			1 50‡				$ 2 per day for each cart and 2 oxen; tools, materials, and smithing at expense of state.

List of contracts made on the Eastern division of the Pennsylvania canal, &c.—Continued.

s of contracts.	Names of contractors.	Kinds of work.	Wages per day.							
			For contractors own services.	For each labourer in water.	For each labourer out of water.	For each horse, cart, and driver	For each team with 2 horses and a driver.	For each mason.	For each stone cutter and carpenter	
Oct. 3	Charles Blanchard	Repairs	$ 1 25	$ 1 00	$ 90‡	$ 1 50	$ 2 00	$ 1 50		‡ until December 1st, 80 cents. from December 1st. for each day labourer. $ 3 per day for each team and 3 horses } Materials and smithing at $ 4 do do do 4 do } expense of state.
do 3	H. B. Blanchard	Do	1 25		90	1 50				$ 1 50 for each team, and 1 horse per day } do do do $ 3 00 do do do }
do 10	Jacob Rinehard	Making 2 ditches and filling up abutments of bridge on section 23								$ 44 25;
do 19	George Haman	Building a culvert, near Neisley's	1 75‡		90			1 55	$ 1 25‡	‡ and 1 75 for Charles Anderson } Lime, sand, and hauling, at ‡ for carpenter } expense of state.
do 16	Thomas Elliott	Repairing waste gate near Neisley's	1 50						1 50	
do 19	Rudolph Miller	Mason work round the Penn lock, and vertical wall under bridge, on section No. 28	1 50		90			1 50		
do 20	John Martin	Securing pier head next to Duncan's island	1 00		90					
do 31	Thomas Elliott	Putting wicket gates into lock No. 6	1 50						1 50	
do 31	William Bell	Repairs	1 00		90	1 50				$ 9 for powder and tools, smithing at expense of state.
vember 4	F. Baldwin	Filling in with stone and gravel at Duncan's island	1 25‡		90‡					$ 4 50 for each boat load of stone filled in ‡during the filling in with sand.
do 4	Benjamin Zerger	Making a ditch to drain the canal water from the meadow, on John M'Kee's place								$ 31.
		Relative to the new line from the mouth of the Swatara to Columbia.								
August 5	Simon Cameron	One bridge near Columbia, in range rubble work, laid dry, pointed with cement, two bridges near Chicques creek in rough rubble work, laid dry, not pointed								$ 1 87½ per perch, coping at estimate of engineer, $ 2 12½ per foot lineal for the wood work, including the irons and the painting, materials at expense of the contractor, except the cement.
do 15	Johnson & Maize	Culvert on section No. 13								$ 2 75 per perch.
Septem. 10	John Enny	Removing a rock in the Susq., opposite Chicques								$ 50.
do 14	Laurence Johnson & Jacob Maize	Stone work of 3 bridges, on sections No. 7, 13, & 14 Wood work of 5 bridges on sect. 5, 7, 13, 14 & 18								At $ 1 70 per perch for bridge on section No. 7, $ 1 80 on No. 13, and $ 1 60 on No. 14. At $ 1 80 per foot lineal, $ 1 80 on sections No. 5 and 7, $ 1 87½ on section 13, $ 1 85 on 14, and $ 2 29 on 18.
October 6	George Schott	Culvert on section No. 12								$ 3 per perch of mason work.
do 15	M. & W. Byrne	Locks No. 2 to 8, both inclusive, and Lock near the Swatara, if required.								$ 8 00 per foot lift, inclusive of materials and cut stone facing, and the following per cubic yard, 15 cents for excavation, hardpan 25 cents, rock 60 cents, slate 30 cents, embankment and puddling 20 cents, bailing water, if any, and other items of work not specified, at estimate of engineer.
do 27	Simon Cameron	Section No. 3, (re-let to him)								Gubbing and clearing at estimate of engineer, and providing stone, the following per cubic yard, excavation 11 cents, hardpan 15 cents, embankment 15 cents, puddling 20 cents, slate rock 15 cents, outside slope wall at 45 cents per perch.
November 8	Samuel Hopkins	Bridge near Columbia								$ 4 per perch of stonework, 75 cents per foot lineal for coping, $ 2 37½ per foot lineal for the wood work, including the iron and painting, materials, except cement, at expense of state.
do 9	Richard Derrick	Fences along section No. 35 & 36								18 cents per foot lineal, materials and white washing included.

JOHN FORREY, Jr. *Acting Commissioner.*

ESTIMATE.

Total cost of completing the work now under contract on the Columbia line.

Grubbing and clearing	$ 2,070	00
Excavation	7.954	76
Hardpan	476	78
Embankment	25.785	50
Puddling	6,252	64
Slate rock	1,545	00
Solid rock	6,108	45
Vertical wall	15,000	00
Outer slope wall	405	22
Providing stone	14,207	10
Inner slope wall	4,586	00
Embankment procured from a distance	10,518	31
Roads	1,145	42
Bridges exclusive of embankments	1,900	20
Culverts	1,450	00
Aqueducts	12,118	00
Lockage 56 feet	44,800	00
Fencing	1,500	75
	$ 157,904	13

Note—All the lockage between the Swatara and Columbia is contracted for and included in the above.

ESTIMATE.

Total cost of eight miles on the Columbia line not yet contracted for, including the aqueduct across the Swatara, and the lock houses.

Grubbing and clearing	$ 1,095	00
Excavation	16,983	00
Hardpan	7,587	45
Embankment	26,599	13
Puddling	600	12
Solid rock	5,265	25
Inner slope wall	2,150	03
Bridges exclusive of embankment	8,500	00
Culverts	600	50
Aqueduct	25.440	00
Lock houses	2,400	00
Fencing	4,120	25
Waste wiers	900	00
	$ 102,240	73
Amount required to complete the work now under contract	157,904	13
Total amount necessary to complete the division	$260,144	86

EDW'D. F. GAY, *Engineer.*

No. 7.

November 2, 1829.

No 5.—List of persons employed on the eastern division of the Pennsylvania canal since the 10th day of June last, when it was put under my charge as acting commissioner at $3 per day.

Edward F. Gay, engineer at $2000 per annum
Franklin Wright, assistant do at $2 62½ per day from June 13
Geo. S. Armstrong, sub. assist. do at $2 00 per day
Daniel Cameron do do 2 00 per day from June 10 to 13.
Thomas Lloyd do do 2 00 per day from July 1 to Oct. 13.
Julius A. Jeger target bearer 1 50 per day from June 13
Wm. McCutcheon do 1 50 per day from June 21
Wm. B. Leopold do 1 50 per day from July 1 to 3.
Geo. B. Hambleton do 1 50 per day from July 5
William Egle axe man 1 00 per day from June 10th to 17th.
Jonathan Voglesong do. 1 00 per day from July 25 occasionally.
Nicholas Ward do. 1 00 per day from June 18 occasionally.
John Lowry do. 1 00 per day from June 18
Henry Martin superintend't of masonry 2 25 per day from June 17
Charles O. Sanford draughtsman 2 00 per day from July 21
F. W. Leopold, clerk 2 50 per day
Hugh M'Ilvaine supervisor 2 25 per day from Sept. 1

JOHN FORREY, Jun. A. C.

No. 8.

November 2nd, 1829.

No. 6.—*Damages paid on the Eastern Division of the Pennsylvania Canal, since the report of last year.*

To whom paid.	Amount.
D. Books	$ 70 00
R. Harris	300 00
George Hoyer	500 00
M. Frantz	250 00
W. Grimshaw	193 00
John Fox	154 30
Catharine Reel	100 00
Susanna Bucher	150 00
J. B. Cox	413 00
C. Mumma	197 43
D. N. L. Reutter	250 00

Abraham Bombaugh	287 26
J. Carson's heirs	368 25
J. Berryhill	110 00
John Hagy	250 00
George W. Bateman	110 00
	$3,703 24
Damages agreed to be paid John M'Kee	400 00
And a ditch at expense of the state to carry off water from embankment of the canal through his meadow, cost	31 00

JOHN FORREY, Jr. *A. C.*

No. 9.

EASTERN DIVISION.

No. 9.—Statement of engineering and miscellaneous expenses paid from June 10th, 1829, *until December 9th,* 1829.

Salaries to

E. F. Gay, engineer,		2 quarters at $2,000 per annum		$1,060 00
Geo. Merrick, assistant engineer,		40 days at 3½ per day		140 00
Franklin Wright	do	167 days at 2⅝ per day		438 37
Daniel Cameron	do	105 days at 2 per day		210 00
George S. Armstrong	do	173 days at 2 per pay		346 00
Thomas Lloyd	do	67 days at 2 per day		134 00
C. O. Sanford, draftsman		93 days at 2 per day		186 00
George M. Lauman, target bearer		98 days at 1½ per day		147 00
Julias A. Jeger	do	170 days at 1½ per day		255 00
W. H. M'Cutchen,	do	160 days at 1½ per day		240 00
George B. Hamilton	do	160 days at 1½ per day		240 00
W. B. Leopold	do	30 days at 1 per day		30 00
Ditto	do	3 days at 1½ per day		4 50
W. Egle,	axeman	109 days at 1 per day		109 00
George Meyer	do	3 days at 1 per day		3 00
J. Voglesong	do	28 days at 1 per day		28 00
				$3,510 87
Instruments and repairing of instruments				60 18
Office rent				28 00
Stationary and advertising				137 07
Candles, fire-wood and other small expenses				25 19
Wagon hire, during survey to Columbia			39 95	
Moving office furniture to Columbia			10 00	
				49 95
Postage on letters from different acting commissioners to the Auditor General, and on letters to the board and to this office				207 38
Counsel fees paid to J. Roberts, Esq.				15 00
				$4,033 64

No. 10.

December 9th, 1829.

No. 10.—*Amount of certificates issued, amount of money due and per centage retained.*

Amount of certificates issued on the eastern division of the Pennsylvania canal		$61,362 00
Moneys due on estimates on the Columbia line, per statement No. 8		2,058 00
Ditto on the old line, per statement No. 1		5,385 93
Percentage retained on the Columbia line, per statement No. 2	48,904 64	
Ditto do 8	4,185 02	
		53,089 66

No. 1.

SUSQUEHANNA AND WEST BRANCH DIVISION.

Report of the Superintendent of the Susquehanna and West Branch Divisions of the Pennsylvania Canal, and Documents annexed thereto.

1. *To the Board of Canal Commissioners of Pennsylvania.*

Gentlemen,—In making out the annexed report of the Susquehanna and west branch divisions of the Pennsylvania canal, which I have the honour to lay before you, my attention has been directed chiefly to the following points. First, to exhibit a detailed report of the present situation of the work, with the amount of money paid on contracts.

2. The amount of damages paid and assessed to individuals.

3. A list of all engineers, assistant engineers, superintendents and clerks employed on the divisions, with the wages of each.

The tabular statements marked A, and B, shewing the several kinds of work done, the contractors names, quantities of work done, the amount of money paid on each contract, and the amount of money retained to insure the completion of the works, it is believed will exhibit a view of the precise, situation of the work in a concise and satisfactory manner. Statements A, and B, shew the amount of damages paid from the commencement of the work up to the present time; to whom, and as far as the limits of a tabular statement will admit, on what account.

Statement C, exhibits the organization of the engineer department and persons employed on the line. The statement of Mr. Rawle, the engineer on both divisions, annexed to his report and marked E, shows the probable amount of work remaining to be done, with an estimate of the cost of the same.

The line of canal designated as the Susquehanna division, between Northumberland and Duncan's island a distance of forty

division of the Pennsylvania canal, from
).

tion .	re- l.	aid.	aid.

No. 10.

December 9*th*, 1829.

No. 10.—*Amount of certificates issued, amount of money due and per centage retained.*

Amount of certificates issued on the eastern division of the Pennsylvania canal		$61,362 00
Moneys due on estimates on the Columbia line, per statement No. 8		2,058 00
Ditto on the old line, per statement No. 1		5,385 93
Percentage retained on the Columbia line, per statement No. 2	48,904 64	
Ditto do 8	4,185 02	
		53,089 6

No. 1.

SUSQUEHANNA AND WEST BRANCH DIVISION.

Report of the Superintendent of the Susquehanna and West Branc Divisions of the Pennsylvania Canal, and Documents annexe thereto.

1. *To the Board of Canal Commissioners of Pennsylvania.*

Gentlemen,—In making out the annexed report of the Susquehanna and west branch divisions of the Pennsylvania canal. whic I have the honour to lay before you, my attention has been directe chiefly to the following points. First, to exhibit a detailed repor of the present situation of the work, with the amount of mone paid on contracts.

2. The amount of damages paid and assessed to individuals.

3. A list of all engineers, assistant engineers, superintendent and clerks employed on the divisions, with the wages of each.

The tabular statements marked A, and B, shewing the severa kinds of work done, the contractors names, quantities of worl done, the amount of money paid on each contract, and the amoun of money retained to insure the completion of the works, it is believed will exhibit a view of the precise, situation of the work i a concise and satisfactory manner. Statements A, and B, shev the amount of damages paid from the commencement of the worl up to the present time; to whom, and as far as the limits of a tabular statement will admit, on what account.

Statement C, exhibits the organization of the engineer department and persons employed on the line. The statement of Mr Rawle, the engineer on both divisions, annexed to his report an marked E, shows the probable amount of work remaining to b done, with an estimate of the cost of the same.

The line of canal designated as the Susquehanna division, between Northumberland and Duncan's island a distance of fort

Statement of work done and payments made to contractors on estimates of the Engineer, on the Susquehanna division of the Pennsylvania canal, from its commencement in the autumn of 1826, until the 2d day of Nov. 1829.

No. of Sect.	Names of contractors.	Grubbing and clearing.	Excavation.	Embankment.	Embankment extra distance	Puddling.	Solid rock.	Slate rock.	Hard pan.	Vertical wall.	Outer slope wall.	Inner slope wall.	Protection wall.	Amount returned.	Amt. paid.	Amt. unpaid.
1	Linton and Russel	400	34257	15068	3056		176	650	1829		1687			6122 31	6122 31	
2	Michael Holloman	100	13818	28,94	3496	166	791		2730					9634 85	9634 85	
3	M'Hargue & White	80	9 57	7038		113	432		805			95		2089 75	2089 75	
4	Coulno & Co.	60	11587	10901		658	1106	161				661		3038 79	3038 79	
5	Eli Russel	200	10950	4 06			2·3		1149			77		1994 79	1994 79	
6	John Ryon	25	11810	3159			97		293					1570 36	1570 36	
7	Barret & Dougherty	75	10581	9454		1168	321		1168					2716 58	2716 36	
8	Noland & Co.	20	12263	8339			69		523				159	1695 12	1695 12	
9	Michael Noland	25	12039	5000		468	4		463					1885 08	1885 08	
10	Shaffer and Bowes		10055	1152			1775					528		4191 51	4191 51	
	successors of Dodd & Co.	50	12395	274		101								1379 40	1185 44	193 68
11	Shaffer and Bowes		101 7	14978		12546	5994		571	187	3046	3066		16,418 25	16,418 25	
	successors of Dodd & Co.	135	12032	34793		8016	4095				3351			10,612 72	9625 49	987 23
12	John Ehle	400	17538	34697	3988	7612	11109	3117			6189			24,784 99	22,933 46	1851 53
13	John Seale	300	17346	48544	3148	10699	5917		7773	247	6442			23,154 30	23,154 30	
14	Samuel Hopkins	550	10852	31948		462	11735	213	6274	7202	1162	3478		29,547 06	29,547 06	
15	Peter Miller	247 50	19182	15082	526		2461		9077	331	5132	1125		15,998 27	13,998 27	
	successor of W. & S. Hunter	87 50	12076			300			150		955			2188 11	1750 49	437 62
16	Ira & Hiram Merrick	300	19697	5836			1558		1236		1181	1158		5489 28	5489 28	
17	Curran and Byrne	470	14712	5383		1424	3443		2518		356	2436		6365 48	6365 48	
	suc. of Woodward & Sanford	92												92 00	73 60	18 40
18	Woodward and Sanford	187 50	18332	10194		2113	3260		3862		1912	2501		7601 42	7601 42	
19	Peter Ritner & Co.	125 25	15014	21252		8747	2060				5227	2759		12,616 56	12,616 56	
20	Provest & Co.	60	8818	112 1	11316	708	5784		2711	3107	1228	2050		14,526 41	14,526 41	
21	William Sullivan	188 50	10687	2611			1067					2993		4134 72	4134 72	
22	Provest & Co.	430	10216	1008			141		3387			2277		2973 57	2973 57	
23	Henry Walters	65	14315	1305		112	163		2193			459		2170 72	2170 72	
24	do do	25	13 57	2067			25		278			75		1823 17	1823 17	
25	L. S. Woodward	80	15417	11566	1400		6		117			2693		4481 58	4481 38	
26	Henry Walters	10	12793	7024	316	5535	1302		1885		116	2216		4804 40	4804 40	
27	Allen & Co.	50	11170	4959	56		254		897	67		725		1922 00	1922 00	
28	Henry Walters	50	2680	2478			541		2684	202		459		2302 02	2302 02	
29	Dan Whitney	40	4166	2728	912	156	555		2328					2685 03	2685 03	
	successor of Jos. Foster	160	7458	470			170		90			2108		843 06	729 84	115 22
30	John Salmon	350	13229	3130			677		2373	23	118	1342		3097 24	3097 24	
31	Jacob Hilliker	5	8661	6199		332	1499		2095	103		83		3081 35	3 81 35	
	successor of H. Larrabe	80	3535				280							415 95	360 58	55 57
32	Wilcox & Co.	100	18590	3494		419	1538		884					4183 01	4183 01	
33	Benezer Hale	50	13 3	26412	5661	11516	570		678			3849		17187 82	17,187 82	
	successor of Nesbit & Co.	25	1950	2590										548 05	438 44	109 61
34	John Miller	60	15447	6468			443		2062	145		400		3358 86	3358 86	
	successor of J. M. & R. Allen	50												50 00	40 00	10 00
35	Isaac Bruner	150	16005	5343	90	1674	1068		3459	12		50		3926 91	3557 33	369 58
	successor of Cameron & Co.	80												80 00	64 00	16 00
36	Michael Noland	40	3333	2549		1826	1026		1046			177		2955 21	1228 54	657 41
	successor of Patterson Ritner	165	6495	2320		1826	1026		40					2303 95	1887 54	316 41
		200	1000											285 00	228 00	57 00
37	Henry Groce	150	1309	939		410						62		853 69	688 54	165 15
	successor of Kenna & Co.	150	10347	1907		1586	259		2015					1940 38	1782 88	157 50
38	Stoughton and Wilcox	240	10805	12816	245	2356	358		1923	23		184		4590 12	4590 12	
39	John Ryon	325	14628	9393		924	1456		5625			40		5508 29	5508 29	
40	John Walls	25	1 098	4361	979	14	813	199	1842			97		2808 84	2808 84	
41	Charles Craft	75	8217	1164			2740	904	774	159	488	99		4446 17	4389 06	57 11
	successor to J. P. Schuyler	75	13100	1119			4007	30	120		1158	97		4484 21	4025 85	458 36
42	John P. Schuyler	150	15557	2117			1557	161				84		3121 25	3121 25	
43	John Walls	100	15481	11575		2370	1391	243	255	55	2685	46		7499 70	7499 70	
44	John Cake	75	10466	8830		1776	550	40	986		2239	59		5797 44	5797 44	
45	do do	50	11778	7109		2788	175		484			198		2240 41	2240 41	
46	J. & G. Herrold		13206	6281			155		1099	27		259		2498 27	2498 27	
	successors of Maclay and Lotz	20	653				80							81 27	65 02	16 25
47	Daniel Sponsnburg	30	11434	5316		1771	147			121				2586 24	2586 24	
	successor of A. B. Mitchell	20	4767	5316			24							383 12	306 50	76 62
48	Groves and Fox	100	17080	7147		1070	1107	42	1151			47		4036 33	4036 33	
49	John Foster	10	89·2	5629		78	189						33	2015 03	2015 03	
50	John L. Ayres	150	14796	26209	1500		5904		726	1271	2200	400		11,827 30	11,827 30	
	John Cummings (wall)									884				1003 78	1003 78	
51	Henry Walters	90	15069	6683			11296			5861		296		14,687 23	14,687 23	
	successor of J. Appleton	150	4204	300			594							599 09	556 64	24 45
52	Henry Walters		155 9		9127		5051			3095	1877	276		11,472 36	11,472 36	
	successor of J. Appleton	100	4871	244			594				2501	389		833 10	721 44	111 66
53	Matthias J. App	35	9907	7395	1200		2246							9063 46	9063 46	
54	do do	200	13279	4836			1685		1575		85	3635		4902 63	4902 63	
55	John J. Ehle	35	13819	10117		5420	3894			1650	975			11,844 72	8561 38	3283 34
	successor of G. Spencer	135	10227	8496		6175	2207					1036		4491 97	3968 47	523 50
56	George Spencer	150	18697	12574	4552	8293	2490	465				15		6729 54	6729 54	
57	Leesig and Myers	75	10753	11095										2044 74	2044 74	
58	Henry Charles	20	8968	1516										1248 89	1248 39	
	suc. of Cunningham & Co.	110	2446											283 45	244 61	58 84
59	Morrow & Brady	175	6962	16381					500					3078 91	3078 91	
60	do do	368	12952	3 40										1957 18	1957 18	
61	James Smith	20	13231	1629										1256 41	1256 41	
62	James Smith		12835	5645										1860 86	1680 10	180 67
	successor of H. W. Snyder	50												50 00	40 00	10 00
63	Martin Weaver	100	193 0	15729		953								3321 09	3321 09	
64	Morrow & Brady	50	3353	10762										5412 60	2994 25	418 35
	successors of Dodd & Co.	60	13151	4070							170			1568 17	1310 01	258 16
65	William J. Myers		7452	4728										1526 06	1520 06	
	successor of Wynn and Bell	25	9594	1716										902 50	806 10	96 40
66	Philemon Dodd		15391	8726					425			44		2571 53	2571 53	
	successor of J. M. Allen.	130												130 00	104 00	26 00
67	Simon Cameron	25	21321	9208			150		3269			72		4865 36	4865 36	
68	John H. Pool		45456				718		6925			262		10,156 37	7122 84	3033 53
	successor of H. W. Sternberg	60	16173											1688 50	1541 98	146 52
69	Simon Cameron		2 000	7625			465				7224			14,615 06	14 615 06	
	successor of H. W. Snyder	200	29131				215				8·5			5144 71	4566 26	578 45
70	John C. Lessig		16634				580		1795		636			4243 66	4243 66	
	seccessor of Dearmond & Co.	75	28913				295		5436		387			4779 27	4131 43	647 84
71	John C. Lessig		41859	1962			159		3101			20		8908 89	6908 89	
	suc. of Wynn and Shannon	22	6000											562 00	484 87	77 13
72	Patrick M'Ginley	175	22011	21860			1072	880			690			17,679 86	17,679 86	
73	Peter Martz	150	16134	13710	14875		1520				3814			15,853 45	15,139 80	2713 65
	suc. of M'Cord and Schuyler			2896							80			571 87	503 10	68 77
74	Isaac M'Cord	175		56400							5510			14,388 69	12,148 52	2240 17
75	Isaac M'Cord	225	3470	37812			62				5228	1500		16,680 03	15,304 81	1575 22
		10990 25	123577	794068	66443	110705	128746	7205	108808	24876	82753	45326	192	$548,516 48	526,998 41	21,517 77
	Former returns	9454 50	101829	664559		81626	80002	5200	74826	15660	54358	18543				
		1545 75	131945	129529	66443	29079	48744	2005	33982	9216	28395	26783				

c' the engineer, ment until the 2d Nov. 1829.

se rock.	Solid rock.	Amount paid.	Amount unpaid.
	1500	10,450	2612 50
		16 665 40	3794 92
		3805 80	952 26
		2 79	397 40
		9062 64	2268 16
		2317	897
		7246 59	
		1599 12	
		400 20	
		953	465 42
		906	328 02
60		1049 87	
10		3469 76	
50		1299	157 08

YON, Jr.
Superintendent of the Susq. and W. B. Div. Pa. Canal.
nal Office, Milton, Nov. 20, 1829.

No 3.

Statement of work done, per centage retained, and payments made to contractors on estimates of the engineer, on the west branch division of the Pennsylvania canal, from its commencement until the 2d Nov. 1829.

No. of Sections.	Names of Contractors	Grubbing & clearing.	Excavation.	Hard.	Hard pan.	Hard slate rock.	Loose rock.	Solid rock.	Embank't.	Embank't. extra dist.	Puddling.	Vertical wall.	Slope wall outside.	Slope wall inside.	Amount returned.	Amount paid.	Amount unpaid.
1	Cameron, Ritner & Co.	150		2000					21300		1500	6700	2150		13,062 52	10,450	2612 50
2	Do do	400	8400	770				1500	71714				6510		20,460 52	16 665 40	3794 93
3	John & Samuel Shaffer	200	35062												4758 06	3805 80	952 26
4	Hunter & Donly		17464						2800	5000					2476 40	2 79	597 40
5	Thomas & M'Clintock	400	58090	1500									5350		11,350 80	9062 64	2268 16
6	Hopkins, Buckalow & Stevens		17425	1200					6300				540		5214	2317	897
7	Beard, Perine & Co.	275	45163	5933	850										7246 69	7246 59	
8	Beard, Perine & Co. upper division	25	8025	4775					1589						1599 12	1399 12	
	William H. Welsh, lower division		3500	58											400 20	400 20	
9	Welsh & M'Reynolds	20	14700						838						1418 42	953	465 42
10	John Lewis	20	6756	636					5848						1234 02	906	328 02
11	Malone & Moore	25	10565	1575					1400						1049 87	1049 87	
12	Henry Colt	225	12173	3213			60		10726	5050	400				3460 76	3460 76	
13	Craft & Foreman	300	8608				10		5059						1456 93	1299	157 93
14	Samuel L. Seigfreid	100	9955	651			50		14432		335				2887 75	2258	629 75
15	Malone & O'Brien	250	4202			25			2540						3679 49	3679 49	
16	David & John Watson		11790						12950				2547		6825 40	4313	2512 40
17	George M. Nasson	15	4750	2360					10900	1600					2513 50	1873	640 50
18	Hopkins, Buckalow & Stevens	150	7000	802		50			1075						1119 49	895	224 49
19	Cande & Gridley	350	12296	1050					7174						2289 54	2289 54	
20	Gudykunst & M'Cleery	300	10453	722		615		125	12194						8724 66	2814 96	909 70
21	William B Sullivan	200	5638	2100	1585	5025	1083	1551	6277						5801 26	5801 28	
22	Armstrong & Montgomery	15	15255	1772			50		3730					70	2212 31	1919 49	292 82
23	Bodine & Pollock	20	11400	2160			50		2800						1605 98	1282 39	323 59
24	Hepburn & Miles	20	12330	2650		710			2133						1810 51	1445 97	364 54
25	Fulmer & Levan	20	9384	6399			90		2700		1500				2829 59	2154 50	675 09
26	Bright & Hougendoble	10	10059	2651			36		4100						1717 84	1274 68	443 16
27	Crawford & Carnahan	35	3337	2795	854		171		3339						1187 24	939 70	247 54
28	Samuel L. Seigfreid	235	6406		2806			90	7491	3551	1000				2908 36	2908 30	
29	Mann, Billmeyer & Co.	100	9190	810					7475		611				2093 28	1259 89	833 39
30	Quinn & Sheridan	255	12805	1860			51		985					187	1731 52	1731 52	
31	Colt & Davis	30	1554	629			15								730 95	584 16	146 79
	successor of D. A. Bowman	30	5904				12		713						236 51	189 21	47 30
32	James Smith	200	9635	1540			68		130	522					1312 23	1197	115 23
33	Simon Dwyer	440	11477	426			27		2078						1611 05	1611 05	
34	Lyman Kelsey	120	9692	3492			25								1514 49	1514 49	
35	Quinn & Farral	260	8920	6038			10		4366	684					2285 24	2285 24	
36	Wasson & Norton	25	5614		195				2051						895 72	715	180 72
37	Dwyer, Thomas & Campbell	90	6377	2183			175	1	2778						1409 11	1133 76	275 35
	successor of John Thompson	109	3222												438 28	348	90
38	Samuel L. Seigfreid	120	6675					180	8762	2525					2293 69	1794 90	498 79
39	Mulcy & Cummings	19	6221	4333			469		3490		450				1395	867 86	527 14
40	Do do	30	5065	3333			357		2439						1237 98	988 70	249 28
41	Gerrold, Reifsnyder & Co.	250	4940	11831	200		1340	52	2600						3243 13	2128 85	1114 28
42	William M'Gaughy	70	5707	9489	558		970		3648						2860 04	2560 04	
43	William A. Lloyd	7	6714	2734			97								1058 95	847 16	211 79
	successor of Kempt & Hobalt	18	1542												156 78	125	31 78
44	Hepburn, Miles & Jackson	70	4708	4722	150		200	1	2543	827					1839 68	1485 85	373 83
45	Hogan & Kelley	15	3709	6422	1		242		5428	1820					2028 88	1622 67	406 21
46	Hepburn & Miles	15	5569	1535			82		149						801 02	801 02	
		$6024	499,788	109,067	6477	40,405	5703	6477	292,024	17,359	5796	6700	14,307	257	$147,474 56	$123,235 21	$24,239 35

Lyman Kelsey	196	ynolds, road			
Hepburn and Miles	66	Sweney, removing	20	20	
Mudey and Kleckner	975		95 66	95 06	
M'Ginley and Allen	459	ynolds, road			
Fisher, Thomas & Co.	316	y, removing buil-	70		
Crawford and Carnahan	86		5	5	
Fisher, Thomas & Co.	415	do do	1129 74	804	325 74
Samuel L. Siegfried	137	basin			
Fisher, Thomas & Co.	484	ngford cast iron	1312	1312	
do do	388	e			
Quinn and Sheridan	92		3,427 86	2764 12	663 74
Fisher, Thomas & Co.	219				
James Smith	220				
John Gotshall	19	GES.			
	348				

Pennsylvania Canal Office,
Milton, November 20, 1829.

certificates now unpaid, is about eighty-nine thousand twenty-one dollars eighty-eight cents.

he great progress that has been made in the construction of the of canal, is owing chiefly to the energy and perseverence of the tractors, and to the unremitting diligence of the corps of engi- rs engaged on the work. All which is respectfully submitted.

JOHN RYON, Jr.
Superintendent of the Susq. and W. B. Div. Pa. Canal.

al Office, Milton, Nov. 20, 1829.

Statement of work done, &c. on the west branch division of the Pennsylvania Canal.

Names of Contractors.	Am't returned	Am't paid.	Amt unpaid
LOCKS.			
Raush and Dillman	3815 40	2251 40	1564
do do	3508 92	2752 92	756
Field, Nesbit & Co.	2565 59	2185 84	379 75
Field, Steughton & Co.	10058 02	8945 42	2012 60
	19,948 93	15,236 58	4,712 35
AQUEDUCTS.			
Moore and Mackey	3507	1929 48	1577 52
	3507	1929 48	1577 52
CULVERTS.			
Raush and Dillman	1304 37	1304 37	
do do	943 50	943 50	
Henderson and Fisher	3491 25	2327 75	1163 50
Montgomery & M'Cormick	1516 88	1516 88	
Armstrong and Montgomery	250	250	
Peter Kutz	2942 94	2942 94	
do	884	884	
do	846 75	846 75	
Samuel Hunter	809 75	518	291 75
	12,989 44	11,554 19	1,435 25
TOWING PATHS.			
Hugh and Patrick M'Ginley	4847 50	2589 20	2258 30
Timothy Gridley	2379	1701	678
	7,226 50	4,290 20	2936 30
BRIDGES.			
Pherrin and Hutcheson	252 00	252	
do do	213 50	213 50	
do do	262 50	100	162 50
Fisher and M'Murtrie	184 50	184 50	
Pherrin and Hutcheson	206 00	184	22
Mudey and Kleckner	298 32	298 32	
do do	271 74	271 74	
do do	339 31	339 31	
John Fisher	112 62	112 62	
Bodine and Waldrow	267 50	267 50	
do do	481 00	481	
Mudey and Kleckner	361 20	270 90	90 30
Bodine and Waldrow	383 25	283 25	100
Lyman Kelsey	196 25	196 25	
Hepburn and Miles	66 00	66	
Mudey and Kleckner	975 14	771 66	203 48
M'Ginley and Allen	459 20	390 50	79
Fisher, Thomas & Co.	316 10	198 88	117 22
Crawford and Carnahan	86 95	69	17 95
Fisher, Thomas & Co.	415 20	323	92 20
Samuel L. Siegfried	137 93	109	28 93
Fisher, Thomas & Co.	484 70	409 95	74 75
do do	388 60	369 21	19 39
Quinn and Sheridan	92 95	92 95	
Fisher, Thomas & Co.	219 30	158	61 30
James Smith	220 30	220 30	
John Gotshall	19 55	19 55	
Fisher, Thomas & Co.	348 90	348 90	
Thomas and Dwyer	174 13	139	35 13
Simon Dwyer	108 57	86 72	21 85
Fisher, Thomas & Co.	258 40	189	69 40
Hugh M'Ginley	523 31	523 31	
Mudey and Kleckner	91 50	73	18 50
Hugh M'Ginley	523 31	523 31	
Levi Hobart	298 50	238 80	59 70
Wm. M'Gaughy	183 12	147	36 12
Wm. A. Lloyd	324 67	259 74	64 93
Fisher and M'Murtrie	221 00	132	89
Hepburn and Miles	154 08	122 66	31 42
Lloyd and Hobart	232 37	185 58	46 79
do do	58 50	47	11 50
do do	323 77	259 12	64 65
John Hepburn	20 91	20 91	
Hepburn and Miles	398 86	318 89	79 97
Field, Stoughton & Co.	15919 59	12254 70	3664 89
	27,585 58	22,222 51	5,362 87

Names of Contractors.	Amt retu'nd	Am'nt paid	Amt unpaid
FENCE.			
Amos Addis	95 50	50	45 50
do do	95 50	50	45 50
John Oyster	205 56	164	41 56
Peter Fogleman	23 10	18	5 10
William H. Welsh	65 41	52	13 41
Peter Fogleman	23 10	18	5 10
Stephen Nicely	224 75	224 75	
William H. Welsh	65 41	52	13 41
Stephen Nicely	224 75	224 75	
John Foresman	237 60	237 50	10
do do	237 60	237 50	10
David Hoge	60	24	6
David Hull	53 60	33 60	
J. & F. Riddle	230 80	96	134 80
T. & T. Pollock	160	100	60
David Hull	33 60	33 60	
T. & T. Pollock	160	100	60
Montgomery Sweney	9 75	9 75	
Charles F. Thoms	230 91	202 05	28 85
Franklin Candor	120 90	120 90	
Charles F. Thoms	230 91	202 05	28 85
Franklin Candor	120 90	120 90	
James Nesbit	83 40	83 40	
John Gotshall	160 20	128 20	32
Charles F. Thoms	230 91	202 05	28 85
John Gotshall	160 20	128 20	32
do do	160 20	128 20	32
Thomas M'Mahan	128 60	102 54	26 06
John Cowden	135 30	108	27 30
William A. Lloyd	203 40	162 72	40 68
John Cowden	135 30	108	27 30
	4,257 16	3522 69	734 47
DAM at Muncy Hill.			
Beare, Kenman, Fletcher & Co.	1500	1200	300
	1500	1200	300
MISCELLANEOUS.			
Andrew M'Reynolds, road	541	433	108
Timothy Gridley, removing building	160		
Andrew M'Reynolds, road	96 06	95 06	
Montgomery Sweney, removing oven, &c.	20	20	
Andrew M'Reynolds, road	95 06	95 06	
Thomas Douty, removing building,	70		
Henry Keyser do do	5	5	
James Smith, basin	1129 74	804	325 74
Seymour & Langford cast iron sluice gate	1312	1312	
	3,427 86	2764 12	663 74
DAMAGES.			
Bethuel Vincent	10	10	
John Rifle	45	45	
David Kirkpatrick	8 69	8 69	
Samuel Morrison	300	200	100
George Junkin	72		72
William Heddens	110	75	35
	545 69	338 69	207
REAL ESTATE.			
Montgomery Sweney	155	155	
David Ireland	300	300	
Elizabeth Crist	120	120	
	575	575	

Total amount returned $229,037 52—Total amount paid $186,848 67—Total amount unpaid $42,188 85—Amount paid in certificates, $38,697 55.

JOHN RYON, Jr.
Superintendent Susquehanna and West Branch Division Penna. Canal

Pennsylvania Canal Office,
Milton, November 20, 1829.

les is now completed, and the water introduced throughout the ole line, and some boats have passed. The work being under al this fall, and its strength fairly tested, it will be ready for nplete navigation in the spring.

The Shamokin dam is now completed, and the schute requires : little work to finish it. That the dam will afford a surplus-ge of water beyond all demands for navigable purposes, but little ibt can exist ; and while upon this subject permit me to remark, t should the legislature deem it expedient to make provision for disposal of water right, a revenue to the commonwealth may anticipated from this source. Judge Rawle having in his re-t marked E, given a detail of particulars.

At the guard lock and at some others on the Susquehanna divi-n, lock keepers have been appointed, and services to commence en the navigation will require it.

On the west branch division from Northumberland to Muncy l, twenty-five miles in length, the work is so far advanced as to ure its completion and fit state for navigation, immediately upon erection of the feeding dam at Muncy hill, in the early part of summer.

The towing path bridge over the west branch of the Susquehanna this division, it is expected will be finished the next year.

The towing path bridge across the Susquehanna river at Dun-i's island, is so far completed as to admit the passage of teams burthen, and afford the necessary facilities. The common-alth are now receiving tolls ; E. Baldwin, the architect, having n appointed collector until the board shall take some order on subject.

By a reference to the tabular statement A, the whole amount of bursements on the Susquehanna division, is eight hundred and ty-two thousand, one hundred and seventeen dollars and twenty e cents.

On the west branch division, the whole amount of disburse-nts is one hnndred and eighty-six thousand, eight hundred and ty-eight dollars and sixty-seven cents.

On account of the two divisions being connected, the amount of ney that the superintendent was anthorized to draw from the asurer, would not meet the amount of the estimates returned by engineer for labour done; it therefore became necessary to e to the contractors certificates for the balance. The whole ount of certificates now unpaid, is about eighty-nine thousand l twenty-one dollars eighty-eight cents.

The great progress that has been made in the construction of the e of canal, is owing chiefly to the energy and perseverence of the itractors, and to the unremitting diligence of the corps of engi-ers engaged on the work. All which is respectfully submitted.

JOHN RYON, Jr.
Superintendent of the Susq. and W. B. Div. Pa. Canal.
nal Office, Milton, Nov. 20, 1829.

No. 4.

C.

List of the Superintendents, Engineers, Assistant Engineers and Clerks, employed on the Susquehanna Division of Pennsylvania Canal, together with the rate of pay, and the sum paid them, from Nov. 15, 1828, *to the 2d June,* 1829.

Charles Mowry, acting commissioner, from Nov. 15, 1828, to 2d June, 1829, 199 days, at $3 per diem	$597 00
Simeon Guilford, engineer up to 30th May, 1829, at $2,000 per annum	1,081 70
Hother Hage, principal assistant engineer up to 2d June, 1829, 199, at $4 per day	796 00
John A. Buyers, assistant engineer up to 2d June, 1829, 199 days, at $3 per day	597 00
John H. Hopkins, sub assistant, up to 2d June, 1829, 199 days, at $2 per day	398 00
Franklin Wright, sub assistant engineer up to 2d June, 1829, 199 days, at $2 per day	398 00
Charles O. Sandford, draftsman, up to 2d June, 1829, 199 days, at $2 per day	398 00
James Warford, sub assistant engineer, up to 2d June, 1829, 199 days, at $2 per day	398 00
Ephraim Wheelock, target man, up to 2d June, 1829, 199 days, at $1 50 per day	298 00
George R. Mowry, target man, up to 2d June, 1829, 199 days, at $1 50 per day	298 00
J. A. Jeger, chain man and target man, up to 2d June, 1829, 199 days, at $1 50 per day	298 00
Richard Lloyd, axe man, up to June 2d, 1829, 199 days, at $1 per day	199 00
F. W. Leopold, clerk, from Nov. 15, 1828, up to June 2d, 1829, inclusive, 199 days, at $2 50 per day	497 50
	$6,254 12

List of the names of all Superintendents, Engineers, Assistant Engineers, on the West Branch Division of the Pennsylvania Canal, with the amount of wages or salary of each, from Nov. 20, 1828.

Andrew M'Reynolds, superintendent, from 20th Nov. 1828, up to 2d June, 1829, 194 days, at $3	$582 00
Francis W. Rawle, engineer, from Nov. 20th, 1828, to June 2d, 1829	1,000 00

illiam Rodrigue, assistant engineer, from Nov. 20, 1828, to June 2d, 1829, 194 days, at $2 75	533 50
bert Faries, assistant engineer, from Nov. 20, 1828, to June 2d, 1829, 194 days, at $2 75	533 50
illiam R. Shoemaker, target man, Nov. 20th, 1828, to June 2d, 1829, 194 days, at $1 50,	291 00
seph M. Nesbit, target man, from 20th Nov. 1828, up to June 2d, 1829, 194 days, at $1 50	291 00
illiam E. Morris, chain bearer, from 1st Dec. 1828, to the 2d June, 1829, 184 days, at $1	184 00
ul Geddis, assistant target man, from Nov. 20th, 1828, to 2d June, 1829, inclusive, 194 days, at $1	194 00
illiam Strine, axe man, from Nov. 20, 1828, to 2d June, 1829, 194 days, at $1	194 00
hn H. Park, axe man, from Nov. 20, 1828, to 2d June, 1829, 194 days, at $1	194 00
illiam Laird, clerk, from 20th Nov. to 2d June, 1829, 194 days, at $2 50	485 00
	$4,483 00

ist of Engineers, Superintendents, &c. on the Susquehanna, and West Branch divisions of the Pennsylvania Canal.

List of names of all superintendents, engineers, assistant engi- eers and clerks employed on the Susquehanna and West Branch visions of the Pennsylvania canal, with the rate of pay or salary each, commencing the 2d June 1829, up to Nov. 15th, 1829.

alaries to

hn Ryon, Jr. superintendant, from June 2d, 1829, up to Nov. 15th, 1829, 166 days, at $3 00 per diem	498 00
rancis W. Rawle, engineer, up to Nov. 15th, 5 months and a half, salary, at $2.000 per annum	900 00
other Hage, principal assistant, up to 10th Oct. 130 days, at $4 00 per diem, resigned,	520 00
hn A. Buyers, assistant engineer, up to November 15th, 1829, 166 days, at $3 00 per diem	498 00
obert Faries, assistant engineer, up to 15th Nov. 1829, 166 days, at $3 00 per diem	498 00
illiam Rodrigue, assistant engineer, up to 15th Nov. 1829, 166 days, at $3 00 per diem	498 00
hn H. Hopkins, sub assistant engineer, up to Oct. 6th, 1829, resigned, 126 days at $2 00 per diem	252 00
ranklin Wright, sub assistant engineer, up to 13th June, 1829, 11 days at $2 00 per diem, discharged,	22 00
ames Warford, sub assistant engineer, from 2d June, to 2d July, 30 days at $2 00 per day, discharged 2d July, 1829	60 00

William R. Shoemaker, sub assistant engineer, up to Nov. 15th, 1829, 106 days at $2 00 per day	332 00
Samuel Ryan, sub assistant engineer, up to Nov. 15th, 1829, 166 days at 2 00 per diem	332 00
Charles O. Sandford, draftsman, from 2d June, 1829, up to July 20th, 1829, transferred to the eastern division, 48 days, at $2 00 per diem	96 00
Michael R. Sharp, surveyor, from 2d June, 1829, to Nov. 15th, 1829, 166 days, at $2 00 per diem	332 0
George R. Mowry, target man, from 2d June, 1829, to 6th October, 126 days, at $1 50, discharged Oct. 6th	189 0
J. A. Jeger, target man, from June 2d, 1829, up to 12th June, 1829, 10 days, at $1 50, per diem, discharged June, 12th	15 0
William E. Morris, target man, from 2d June, 1829, to Nov. 15th, 1829, 166 days, at $1 50 per diem	249 0
E. Wheelock, target man, up to 2d July, 30 days, at $1 50 per diem, 1829, discharged 2d July	45 0
Paul Geddis, target man, up to Oct. 10th, 1829, 130 days, at $1 50 per diem	195 0
Paul Geddis, sub assistant, from Oct. 10th, 1829, to Nov. 15th, 1829, 36 days, at $2 00 per diem	72 0
John H. Park, axe man, from 2d June, to 1st August, 59 days, at $1 00 per day,	59 0
From 1st August, up to Nov. 15th, 107 days, at $1 50, as target man	160 5
William Strine, axeman, from June 2d, up to Nov. 15th, 166 days, at $1 00 per day	166 0
Augustus B. Stoughton, axeman, from August 19th, to Nov. 15th, 88 days, at 1 00 per day	88 0
Lintsford B. Coats, axeman, from 2d July, 1829, up to 10th Oct. 1829, 100 days at $1 00 per day	100 0
And target man, from 10th Oct. up to Nov. 15th, 1829, 36 days, at $1 50 per diem	54 0
Andrew McReynolds, supervisor, from 10th Oct. up to Nov. 15th, 1829, 36 days, at $2 50 per diem	90 0
Joel Parkhurst, clerk, from 2d June, up to Nov. 15th, 1829, 166 days, at $2 50 per diem	415 0
	6,735 5

* * *

List of persons now employed on the Susquehanna and West Branch divisions of the Pennsylvania Canal, with the amount of wages or salary of each, Nov. 15th, 1829.

John Ryan, Jr. superintendant, at $3 00 per day,
Francis W. Rawle, engineer, 2000 per annum,
Robert Faries, assistant engineer, at 3 00 per diem,

William Rodrigue, assistant engineer, at 3 00 per diem,
John A. Buyers, assistant engineer, at 3 00 per diem,
William R. Shoemaker, sub assistant engineer, at 2 00 per diem,
Samuel Ryan, sub assistant engineer, at 2 00 per diem,
Michael R. Sharp, surveyor, at 2 00 per diem,
William E. Morris, target man, at 1 50, per diem,
Paul Geddis, sub assistant engineer, at 2 00 per diem,
Lintsford B. Coats, target man, at 1 50 per diem,
John H. Park, target man, at 1 50 per diem,
Augustus B. Stoughton, axe man, at 1 00 per diem,
William Strine, axe man, at 1 00 per diem,
Andrew McReynolds, supervisor, at 2 50 per diem,
Joel Parkhurst, clerk, at 2 50 per diem,

The total amount of engineering expenses from Nov. 15th, 1828, to Nov 15th, 1829, inclusive, $17,471 62

All of which is respectfully submitted.

JOHN RYON, Jr.
Superintendent Susq. and W. B. Div. Penn. Canal.

Canal Office, Milton, November 20, 1829

No. 5.

E.

Report of amount of work to be done on Susquehanna and West Branch Division, Nov. 20, 1829.

SIR:

The following is a report on the state of the work on the Susquehanna and West Branch divisions of the Pennsylvania Canal, *on the Susquehanna division*, (from Northumberland to the mouth of Juniata, 40 miles) all the work necessary to be done previous to the admission of the water, has been completed for several weeks. The remaining work consists in completing the graveling on Shamokin dam, finishing off the schute in said dam, the roofing and painting the bridge at Duncan's island, and the fencing along the narrows on different parts of the line, all of which will be done in a short time.

The water was first let into the canal on the 22d September, and since that time up to the present week, every attention has been given in the passage of the water and in the filling of the levels, to test the work with as much care as possible. Some rafts of lumber and boats have passed some distance on the canal, but no boat has yet been offered the passage through.

The Shamokin dam has been rebuilt on a plan submitted to the board of commissioners of last year, by the contractor, and adopted by them in March last. It is a work of great magnitude, being more than half a mile in length, and employing a vast quantity of materials in its construction. To accomplish its completion in one season, when no preparation in procuring materials had been previously made, and frequent rises of the river were encountered, has required much exertion in those engaged in it; it is believed, however, that every thing has been done to insure its permanency.

The schute in the dam made for the passage of the descending trade of the river, has been rebuilt in the manner directed last winter, and it will be found to answer perfectly well the intended purpose in high water, or when the river is in a proper state for navigation; but in what is called the low stage of water, when craft have a difficulty in passing various other parts of the river, it will require, if it is to be used then, a further extension down, in order to furnish an increased depth of water in the gravel bar that occurs for 3 or 400 feet below. During the present month a partial rise in the North Branch brought down a number of rafts and some arks. For the first day, while there was sufficient depth below to float a lightly loaded ark, the passage was made without difficulty; but when the water fell away, the rafts of lumber that went through, suffered some damage in parting their platforms in the rough and shoal water below. If directed by the board, the work can be made to answer in all stages of water.

- Every exertion will be made, as long as the season will admit, in trying the work in this division, in order for a complete navigation in the opening of the spring.

On the West Branch division, (from Northumberland to Muncy hills, 25 miles,) all the excavation, embankment, locks, aqueducts, &c. will be completed during the winter.

The erection of the dam at the Muncy hills, necessary for feeding this division was postponed until next season, as it was not expected that even with the utmost diligence, the work could be entirely completed for navigation in one season, and it was desirable to avoid the inconvenience arising from it to the rest of the work, as well as the interference with the ascending trade of the river. The materials being all ready, the dam will be put in as early as possible in the summer, and in the mean time, the canal will be entirely prepared to receive the water. At the bridge at Northumberland, the work is sufficiently advanced to insure its completion during the next year.

On the *Susquehanna division*, the following amounts will be required for the payment of work finished, but not yet returned, and for work yet to be completed, viz.

Section No. 75	$2,345 00
Locks	6,000 00
Dam and schute at Shamokin	11,500 00
Bridge at Duncan's Island,	14,868 00
Fencing along the "narrows"	3,300 00
	$38,013 00
Contingencies	4,000 00
	42,013 00

On the West Branch division, the following is the estimated ount of the cost of work yet to be done, viz.:

m and guard lock at Muncy Hill	$13,500 00
cavation, embankment, walling, &c.	29,080 00
cks on the line,	3,040 00
tlet do at junction with North Branch,	3,156 00
sin at do	300 00
queduct at Chilisquaque	853 00
idges, including towing path bridge at Northumberland	44,195 00
aste wiers and fencing	3,300 00
	$96,384 00

Respectfully yours,
F. W. RAWLE, Engineer.

To J. Ryon, jr. Esq. superintendent of Susquehanna and West ranch divisions of Pennsylvania Canal.
November 20, 1829.

No. 1.

DELAWARE DIVISION.

To the Board of Canal Commissioners of Pennsylvania.

ENTLEMEN :

In obedience to the resolution of the board, passed the 2d October last, directing "that each acting canal commissioner nd superintendent of canal or rail road, be requested on or before e 25th day of November next, to transmit to the secretary of e board, a report embracing the following particulars :

st. The amount of work done in the original construction of the works under his charge since the last annual report, specifying its different kinds, and designating the sections on which it has been executed, together with the names of the contractors, the amount paid to each, and the amount then due.

d. The amount of work done upon his line in making alterations, improvements or repairs, together with the names of the contractors, and the amount paid and the amount due to each; and generally all such facts and observations in relation to the public works under his charge as will furnish to the board and the legislature the fullest and most satisfactory information on the subject.—I have the honour to report.

That statement marked A. hereunto annexed, exhibits the amount paid to contractors for work done on sections since the last nnual statement, (20th November, 1828,) to whom, the kinds and quantities of work done, and the amount now due.

Statement B. contains the same information with regard to the mechanical work. There have been but two contracts entered into for repairs, &c. and those are for the repairs of banks, completing small portions left for temporary passages, digging back drains, &c. the amount paid on each is entered at the end of statement B.

Statement C. exhibits the present organization of the engineer corps.

" D. The amount of damages paid since the last annual statement.

" E. Shews the amount of monies drawn from the treasury, and in what manner the same has been disbursed from the commencement of this division up to the present time; by a reference to which, it will be seen that the amount actually expened is six hundred and seventeen thousand six hundred and ninety-two dollars and three cents. The whole amount drawn from the treasury is four hundred and seventy-six thousand three hundred and thirty eight dollars and ninety-two cents, and that the balance due from the commonwealth is one hundred and forty-one thousand three hundred and fifty-three dollars and eleven cents, for which certificates have been issued, in accordance with the resolution of the board of the 3d of October last.

In order to give the board and the legislature the fullest and most satisfactory information in relation to the state and progress of the work on this division, I addressed a request to Mr. Sergeant, that he would furnish me with a detailed report of the present state of the work, and at the same time give an opinion, founded on his knowledge of all the circumstances, at what time the whole would probably be completed for the purposes of navigation. I subsequently received a suggestion from the secretary of the board, of the propriety of having an estimate made by the engineer, of the amount of work of "every desription" remaining to be done, which I immediately communicated to him; statement marked F. is his report in reply.

It may not be improper that I should remark, that there are a number of the locks and culverts entirely finished, and that final estimates on them are at this moment in preparation, the amount of which would have been inserted in statement B. as work already completed, could they have been had in time; as it is, they appear in the amount of work yet to be done.

Respectfully submitted,

THO. G. KENNEDY, *Supr.*

Office of the Delaware division,
Pennsylvania Canal, Erwinna, 20 *Nov.* 1829.

Statement B. contains the same information with regard to the mechanical work. There have been but two contracts entered into for repairs, &c. and those are for the repairs of banks, completing small portions left for temporary passages, digging back drains, &c. the amount paid on each is entered at the end of statement B.

Statement C. exhibits the present organization of the engineer corps.

" D. The amount of damages paid since the last annual statement.

" E. Shews the amount of monies drawn from the treasury, and in what manner the same has been disbursed from the commencement of this division up to the present time; by a reference to which, it will be seen that the amount actually expened is six hundred and seventeen thousand six hundred and ninety-two dollars and three cents. The whole amount drawn from the treasury is four hundred and seventy-six thousand three hundred and thirty eight dollars and ninety-two cents, and that the balance due from the commonwealth is one hundred and forty-one thousand three hundred and fifty-three dollars and eleven cents, for which certificates have been issued, in accordance with the resolution of the board of the 3d of October last.

In order to give the board and the legislature the fullest and most satisfactory information in relation to the state and progress of the work on this division, I addressed a request to Mr. Sergeant, that he would furnish me with a detailed report of the present state of the work, and at the same time give an opinion, founded on his knowledge of all the circumstances, at what time the whole would probably be completed for the purposes of navigation. I subsequently received a suggestion from the secretary of the board, of the propriety of having an estimate made by the engineer, of the amount of work of "every desription" remaining to be done, which I immediately communicated to him; statement marked F. is his report in reply.

It may not be improper that I should remark, that there are a number of the locks and culverts entirely finished, and that final estimates on them are at this moment in preparation, the amount of which would have been inserted in statement B. as work already completed, could they have been had in time; as it is, they appear in the amount of work yet to be done.

Respectfully submitted,

THO. G. KENNEDY, *Supr.*

Office of the Delaware division,
Pennsylvania Canal, Erwinna, 20 *Nov.* 1829.

STATEMENT A.—Exhibiting the contractors names, contract prices, quantities of work done, and amount paid since the 20th of November last.

Contractor's Names.	No. of the section.	Contract prices.									Quantities of work done.									Cash account.		Remarks, &c.
			Per cubic yard.					Perch.		Square yard.												
		Grubbing and clearing.	Excavation.	Embankment.	Bank, &c.	Solid rock.	Hardpan.	Vertical wall.	Slope wall outside.	Slope wall inside.	Grubbing.	Excavation.	Embankment.	Bank and surplus.	Solid rock.	Hardpan.	Vertical wall.	Slope wall outside.	Slope wall inside.	Amount retained.	Amount paid.	
	No.	Dolls.	Cts.	Cts	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Dolls.	Amount in cubic yards.					Perches.		Square yard.			
Morris & Dorrance	1		7	7								6,337	500							$18	$ 685 59	Cul. at mill race $225
John Gray	20	25	11	16		60	23				25				3285						2442 38	Completed
Morris, Cook & Co.	22	50	9	9		50	25				50	2,609	1056		40						617 56	Do
Charles F. Lineback	38	100	7	9		42	18				75	1,000	420		11	300					352 87	Do puddle 43 yards
Bird & Sutton	40	50	7	7		35	22				20	10,954	1156		368	2040					1715 30	Do
Hackley, Townsend & Co.	42	250	9	9		45	23		75		75	26,573	6423		689			3784			8985 25	Do 3444 pers. apron
Barker, Smith & M'Allister	43	150	8	10		40	25		87½	87½	75	21,219	6141		200			2961	437		6964 60	Do 4690 do
Brittin & Bishop	44	30	7	10		60					5	2,729	3719		2						749 13	Do
Morris & Chadsey	46		7	12		50	25				200	10,500	700							117	902	
Morris & Brown	47		8	9		50	25		90		20	6,452	5647		500	500		2402		72 50	5927 69	Temporary bridge $5
T. & P. Moore	48	75	8	10		50	18		55			8,100	3134		1084	743		932			2633 74	Completed
Wilson, Ely & Parry	49	55						100				8,750			550	900	3630			67 50	5500	
Murray, Coryell & Co.	50	20	8	12½		40	25					6,282	11,938		2897	250				250	2966 11	
James R. Scott	51	30	8	9		50	25				30	17,930	3400			100					1794 60	
Do do	52	200	9	10		50	25				175	22,710				1590				100	2516 40	
Barker & Wallace	53	50	7	12		50	25				50	11,230	1986		100	1577					1538 67	Completed
Philip Reilly & Co.	54		8	10		35	13					15,630	9200		50	1200				250	2093 90	
Andrew Boyle	55	40	7	7		37½	12½					8,670				855				100	640 02	
Patrick Murphy	56	50	7	10		40	18				50	21,300	788			1817					1976 86	Do
C. D. O'Herring	57	60	7½	9		50	18		70		50	21,350	2200		20	2150		1540		180	5144 25	
William Weller	58		9	12		50					125	15,545	3000		4	815		3270			4435 50	Do
Robert Blackstock	59	225	9	10		45	20		60		100	14,300	1000		3443	10340		3750		1082 85	6375 75	
Do do	60	300			27			50			100			36,050			6750			966	12,242 50	
Morris & Dorrance	61	300			25			60	60	60	250			39,700			8942		1850	1802 60	14,847 40	
Patrick Moore	62	100	9	12½		44	20		60		70	22,387	4100		2250	1700		5800		844	6608 33	
Barker & Downing	63	150	8	11		45			75		150	33,221	3591		211			4855	1227		12,545 25	Do road included
Carmichael & Hinsdale	64	200	10	12½		50	13	48		20	150	28,195	3400		120	700	8799		924	490 20	7478 62	
Isaac Otis	65	600			25					60	500			28,460			8864		650	250	13,025 85	
Smith & Duffey	66	150	7	9		40		50			110	12,374	1000		400		2630			156 50	2450 13	
Morris, Dorrance & Hough	67	100	9	9½		50					100	6,488	4737		200						1283 92	Completed
Joel Cheston	68	50	7	7		50				25	50	13,565	1100						24		1087 55	Do small culvert $5
Barker & Downing	69	25	7½	11		45						5,607									420 52	
Do do	70				24			60	60	60	300			39,065				8157	700	600	14,447 80	
Mills & Powers	71	200			24			55	55	55	150			27,809				6050	300	1029 52	9304 16	
Do do	72	30	7	10								8,135	400								609 45	
Philip Reilly & Co.	73		8	12		40					70	15,800	2100		1000					116	1954	
Abraham Vanhorn	74		9	12		45				40	175	24,970	4215		4517				992	482 80	4874 75	
Smith & Duffey	75		8	12		42				30	100	28,125	1800		5670				1050	422 91	4489 80	Pud. 387 yds at 15cts.
Levi Lee & Co.	76	75	8	12		45					95	11,885	5115		3992						3456	
Patrick Mulvany	77		9	16								9,442	16,073		4697					500	4840 26	
Do do	78		9	16		40	20				100	11,470	10,338		3389	300					4201 98	Completed
William Weller	79		7½	10							185	5,284	1558			350					834 10	Do
P. & D. Reilly	80	80	8	8½		56	23				80	16,900	11,648			300					2561 07	Do
Moylan & Sullivan	81	5	7½	9		45	12½				5	9,857	7078								1381 29	Do
Do do	82		7	9		45	12½				25	11,943	1223			1612					1212 58	
Patrick Murphy	83	200	8	8		40	18				250	34,064	5757			2200					4041 68	Completed bridge $3
Morris & Dorrance	84	250	8	8		50					140	4,000									460	
Joshua B. Calvin	85	50	9	10			20				50	5,231	5112			480				100	1016 49	
Do do	86	50	10	10			20				50	19,109	900			3599				90	3680 70	
John Bird	87		12½	12½			25				30	28,534	4119			3720					5041 62	Completed
William Weller	88		8	8			23				25	11,012	4766		50	300					1381 24	Do
Do do	89		7	7			25					3,000									210	
William Erwin	90		7½	12								11,810	5000							110 75	1375	
P. & D. Reilly	91	30	8	12		40	23					17,400	3400							122	1678	
Do do	92		8	12		50	23				150	14,600	2000			3000				229	2019	
James R. Scott	93	100	8	8	20				60		70	4,000		9000				1320		106	2876	
Charles Pettit & Co.	94				20			43	60		275			27,238				2074		492	6475	
Do do	95				23			45	60	60	280			24,900			3480	1090	450	916	7575	
Pitcher & Smith	96		7½	12½	23			50	60		150	13,060	6500	9400			1670			275 50	4913 50	
Jacob Kintner	97	15	7½	10			20				15	16,209	3609			500					1690 77	Completed
Ira S. Hitchcock	98	50	9								50	13,300								62	1185	
Do do	99	100	8		25						100	11,150		15,600			3150	100		399	6533	
Smith & M'Allister	100	15	9	10		50	20				10	8,500	8400		1060			3740		289	4100	
Coyle, Reilly & M'Donald	101		6½								20	10,074	11,200							60	1890	
Do do do	102		7	7								15,107								60	997 49	
Hough & Porter	103	150	7½	11							150	27,184	3242					1957			3905 32	Completed
Porter & Hough	104	175	7½		28	40		49	60	60	175	6,160		20,743			5474	400	350	648 50	8958 80	
Daugherty & Barnet	105	150	7½	9				49	49		150	12,200		12,260			5640	100	460	483 40	6094	
Christopher Midler	106	250	7			49		60			221	35,778	14,900		382		5318	3762		259 20	11,293 04	
Daniel Raub	107	20	6½	12		50					20	13,600	4500							31	1413	
Coyle, Reilly & M'Donald	108	180	7½	10		40			50		50	6,000	20,350		300			1800		305	3250	
Barker & Downing	109		7¾	12	20				65		100			6500				1400		140	3300	3200 pers. apron
Alfred Bishop & Co.	110	150	7	10		50	50		60			14,000	10,000			2000		950		150	3000	
Ira S. Hitchcock	111	100						60						10,100			2050			106	2670	
M'Clain & M'Mahon	112	150	7½	10	16			40			50	11,200	9400	11,800			1900	600		448	4800	1000 per. apron at 30cts
James Williams	113		6¾				18				100	44,000				1000				240	3010	
Thomas J. Rogers & Co.	114		7	10			18				20	30,010	1000							110	2140	
John Bowes & Co.	115		7				18					17,000				1400				71	1371	{ 2200 pers. apron at
Carey & Porter	116	125	7½	9	22½			55	65		100	20,000	1000	14,200			3300	2800		112 50	9237 50	} 30 & 40 cents
Boyd & Neligh	117	75	6¾	10	17							46,400	9000	9000	60			3600		459	6905	2000 do do 40 cts
Levers & Boyd	118		9		19							12,000	5000	11,400				2000		180	5166	Do do do 50 cts

NOTE.—Wherever the price for any item of work is left blank in this or either of the annexed statements, should any work of the kind occur, it is stipulated in the contracts to be paid for at the estimate of the engineer.

5
)
0
35
30
ges,
lied

but not yet paid for the want of funds,
to that purpose.

No. 3.

Statement B. exhibiting the contract prices, the amount due, and the amount paid on the mechanical work.

LOCKS.

Contractor's Names.	Nos. of Lock.	Lift.	Contract prices.				Contract prices.			Cash account.		Remarks, &c.
			Perch.				Cubic yards.					
			Masonry in cement	Masonry dry wall	Wood work complete	Iron work	Excava.	Embnk't	Puddle.	Amount retained.	Amount paid.	
		feet				Cwt.	Cents.	Cents.	Cents.			
rris & Dorrance	1	7	$3	1 50	$950	12	12½	12½	25	$260	$5605	
Do do	2	6 68	3	1 50	950	12	12½	12½	25	270	3982 50	
Do do	3	6.52	3	1 50	950	12	12½	12½	25	135	3458 12	
Do do	4	6	3	1 50	950	12	12½	12½	25	400	3747 75	
rles Cook & Co.	5	6	2 60				12	12		535	2478	
Do do	6	6	2 60				12	12		590	2914	
Do do	7	8	2 10				12	12		690	3341 88	
rris, Dorrance & Sprague	8	6.94	2 50	2	1150				25	650	1900	
Do do	9	6.94	2 50	2	1150				25	340	2407 76	
rray, Corryell & Co	10	8	2 50	2	1150					316	5093 08	
Do do	11	8	2 50	2	1150					110	3020 08	
vid M'Lellan & Co	12	5 87	2 62½	87½	1012	10 lb	10	12½	15	200	3981 72	
Do do	13	6	2 50	82	1002	10	10	12½	15	400	2808 70	
rris, Dorrance & Cowell	14	9	2 50	1 50	1150					585	3680	
rles Cook & Co	15	6	2 60	87½	1000		12½	15	40	380	2614	
Do do	16	6	2 60	87½	1000		12½	15	40	400	2775	
vid M'Lellan & Co	17	6	2 75	87½	1002	10 lb	10	12	15	500	3150	
lls & Powers	18	10	5 12½	1 50	1200		15	15	20	850	4095 66	
Do do	19	6	2 95	1 50	1000		12½	15	18	300	3587 50	
Do do	20	8	2 70		1200					100	750	
Do do	21	9	2 80		1200					660	3552 50	
David M'Lellan & Co	22	8.30	2 50	87½	1000	10 lb	12½	12½	15	50	564	
Do do	23	9	2 50	87½	1000	10	12	12½	15	50	564	
T. & R. English	24		2 60	1 60	1175		8	12	20	200	2500	Guard lock at Easton
Wilson, Ely & Parry	25									70	2228	Do at New Hope
										8971	$71,579 19	

AQUEDUCTS.

Contractor's Names.	No. of aqueduct	Span in the clear.	Masonry in cement	Slope wall.	Trunk per foot lineal.	Excava.	Embnk't.	Puddle.	Foundat. timber.	Amount retained.	Amount paid.
		feet				Cents.	Cents.	Cents.			
Morris & Dorrance	1	25	$2 62½	$0 60	$21	12½	14	15		$200	$2570
Do do	2	75	2 50		10 50					335	3440
Do do	3	28	2 75		20	18½	13	25		290	2630
Murray, Corryell & Co	4	50			16 50					250	3550
Morris, Dorrance & Cowell	5	50	2 50	1 50	16			25		360	2054
Do do	6	150	2 50	1 50	14 50			25		1150	5397 60
Do do	7	75	2 50	1 50	16			25		485	2827 50
Jacob Kintner & Co	8	28	2 75		17					140	2326
T. & R. English	9	50	2 87½		10	9	12½	16		150	2150
										3340 00	26,825 10

Amount paid on culverts from No. 1 to No. 21 inclusive, since last annual statement		$11,960 12
Amount due and retained on culverts No. 1 to 21 inclusive	$512 00	
Culverts No. 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17 and 18 are completed, but the final estimate not yet paid.		
Amount paid on waste wiers from No. 10 to 15 inclusive		650 00
Amount paid on turnpike, common road and farm bridges, from No. 1 to No. 105 inclusive		20,639 41
Amount due and retained on do do do do	775 00	
Amount paid on fencing sub divisions No. 1, 2 and 3		6,865 37
Amount paid on the basin, pier and tide lock at Bristol		7040 00
Amount due and retained on do do do	1060 00	
Amount due on the feeder dam and outlet lock at Easton. no payment having yet been made	6000 00	
Amount paid Benjamin Swain for repairs of banks, digging back drains, repairing washes, &c.		500 00
Amount paid Syra Morrison for do do do do		2,117 85
	8347 00	49,772 75

Note—For the contract prices of the above items, see the report of 20th November last, except the feeder dam and outlet lock at Easton, for which a contract was entered into with the Lehigh coal and navigation company, on the 18th day of June last, to furnish all the materials and complete the same for sixteen thousand dollars they indemnifying the commonwealth against any claim for damages on account of obstructing the navigation of the Lehigh during the progress of the work.

No. 4.

Statement C. exhibits a list of persons employed on the engineer department, with the salary of each.

Names.	Station.	Commencing.	Ending.	Salary.	Remarks.
Henry G. Sargent	Engineer	20th Nov. 1828	20th Nov. 1829	$2,000 per annum.	
Frederick C. Mills	Principal assistant eng.	Do do	Do do	4 per day	
Charles L. Schlatter	Assistant engineer	Do do	Do do	3 do	See report of 1st Oct. last
James B. Sargent	Do do	Do do	Do do	3 do	
Joseph B Conard	Resident assistant eng.	1st Jan. 1829	Do do	2 do	On sub division No. 1 from sec. 1 to 44 inclusive
Thomas Couch	Target bearer	12th March, do	Do do	1 50 do	
Simpson Corbert	Resident assistant eng.	20th Nov. 1828	Do do	2 do	Do do No. 2 from 45 to 61 do
Robert S. Trego	Target bearer	15th April, 1829	Do do	1 50 do	
John D. Steele	Resident assistant eng.	1st Jan. do	Do do	2 do	Do do No. 3, from 62 to 75 do
William M Cowell	Target bearer	Do do	Do do	1 50 do	
Michael S. Heaney	Resident assistant eng.	20th Nov. 1828	Do do	2 do	Do do No. 4, from 76 to 92 do
Antes Snyder	Target bearer	23d June, 1829	Do do	1 50 do	
James M'Keen	Resident assistant eng.	1st April, do	Do do	2 do	Do do No. 5, from 93 to 106 do
James M Long	Target bearer	16th do do	Do do	1 50 do	
Ralph Harrison	Axeman	20th Nov. 1828	Do do	1 do	
John C. Stocker	Resident assistant eng.	Do do	Do do	2 do	Do do No. 6, from 107 to 118 do
Charles Carey	Target bearer	Do do	Do do	1 50 do	
Daniel Troxell	Axeman	Do do	Do do	1 do	
Lewis S. Corryell	Superin. mechanical work	10th March, 1829	Do do	5 do	See report of 1st October last
Charles Heckman	Do do do	20th May, do	Do do	2 do	
William F. Swift	Do do do	15th June, do	Do do	1 do	
Augustus W. Kennedy	Clerk in canal office	1st July do	Do do	2 50 do	

Note.—The above list will be reduced nearly one half on the first of December next.

No. 5.

STATEMENT D.—*Damages paid since last Annual Report.*

hn Case, temporary damages to garden, fences, &c. in New Hope	86	00
eirs of Jesse Morris, for the occupancy of land in Bristol	132	50
arles Taylor, for the occupancy of land in Upper Makefield	331	87½
braham Slack, for erecting a small temporary bridge on the river road	7	25
eter B. Brodnax, for the occupancy of land in Bristol township	171	
Duer, temporary damages to farm in Lower Makefield	20	
seph Harwick, for removing fences,	8	62½
seph Heed, for removing fence and moving shop in Lumberville	18	65
hn Heed, for removing fence and making shop in Lumberville	10	40
obert Skelton, temporary damages in Morrisville	25	
ahlon Kirkbride, for the occupancy of land in Lower Makefield	712	50
ohn Kirkbride, for the occupancy of land in Lower Makefield	466	10
ewis S. Coryell, in lieu of a farm bridge at New Hope, per estimate of the engineer	317	50
ohn Phillips, for the occupancy of land and in lieu of a farm bridge in Bristol	618	57
eorge White, for the occupancy of land and in lieu of a farm bridge in Yardleyville	292	
zaniah Lambert, temporary damages $8, and removing house in Morrisville $45	53	
ilbt. Lucas, temporary damages to wheat crop in Bristol	15	
acob S. Walton, for the occupancy of land in Bristol township	216	55
ahlon Dungan, for the release of fencing in Yardleyville	88	50
ichael Fackenthall, for removing waggon house, &c. on Jacob Overpeck's land in Durham	25	00
amuel Hartley, for digging a well in Lumberville, in lieu of one destroyed	12	
artley & Hoppoch, for removing lumber from the line of canal in Lumberville	11	25
William Reading, temporary damages on the farm in his occupancy in Nockamixon	20	
Henry Lawshe, temporary damages on the farm in his occupancy in Tinicum	38	80
Jacob Raub, for removing smith shop from the line of canal in Durham	20	

NOTE—Some other agreements have been made for damages, but not yet paid for the want of funds, which could be applied to that purpose.

No. 6.

STATEMENT E.—*Exhibiting the amount drawn from the Treasury, and disbursed on the Delaware division.*

Date of settlement of accounts with the officers of the accounting department.	No. of the settlement.	Expense of the engineer department.	Current contingent expenses.	Amounts paid contractors for work on sect.	Am'ts paid contractors for mechanical work.	Damages.	Aggregate amount of each settlement.
1828, March 31 -	1	$ 3,671 20	$ 419 16	$7,786 57	- -	- -	$11,876 93
June 3 -	2	2,278 00	303 85	35,859 50	- -	28 00	38,466 35
August 30 -	3	2,354 50	243 62	28,732 37	- -	1,031 87	32,362 36
December 18 -	4	3,420 00	268 87	26,065 78	2,595 74	1,663 25	4,013 64
do 31 -	5	- -	- -	15,297 05	- -	- -	15,297 05
1829, January 30 -	6	162 00	105 15	21,636 27	4,672 63	761 62	27,337 67
February 25 -	7	- -	- -	17,271 86	1,086 48	- -	18,358 34
April 1 -	8	5,156 00	72 13	14,807 78	1,817 50	- -	21,853 41
do 25 -	9	- -	- -	24,611 50	2,548 14	- -	27,159 64
June 2 -	10	4,914 50	73 50	17,994 25	15,974 00	715 30	39,671 55
June 26 -	11	- -	- -	31,956 37	13,499 00	- -	45,455 37
July 11 -	12	- -	- -	3,616 01	3,450 00	2,139 67	9,205 68
July 21 -	13	- -	- -	18,734 50	16,740 00	- -	35,474 50
July 29 -	14	- -	251 74	9,320 00	2,110 37	- -	11,682 11
August 18 -	15	- -	- -	22,813 40	- -	- -	22,813 40
August 28 -	16	- -	- -	12,315 92	22,995 00	- -	35,310 92
October 2 -	17	- -	- -	37,300 82	- -	- -	37,300 82
	18	8,910 50	20 40	4,692 44	24,341 75	733 30	38,698 39
	19	- -	- -	41,685 22	20,130 54	- -	61,815 76
	20	- -	- -	35,534 17	19,001 00	- -	53,538 14
				Whole amount of disbursements		- -	617,692 03
				Whole amount drawn from the Treasury		-	476,338 92
				Balance due from the Commonwealth		-	$141,353 11

Note.—The first and second items of "Expenses of the Engineer department" and "Current contingent expenses of the survey, and examination from Bristol to Philadelphia

No. 7.

Statement exhibiting the whole amount of work "of every des-
ption" remaining to be done on the Delaware Division of the
nnsylvania Canal.

SECTIONS.

ions	No. 1	$408 10
	46	607
	47	1,520
	49	7,533
	50	1,081
	51	227
	52	1,014
	54	383 70
	55	1,605 50
	57	849 40
	59	2.079 50
	60	7,649
	61	3,524
	62	4,904 50
	64	1 560 10
	65	4,640
	66	825
	69	707 50
	70	4,410
	71	4,059 20
	72	645 38
	73	1,347 60
	74	940 77
	75	1,317 60
	76	1,599 60
	77	206 07
	84	617
	85	342
	89	775
	90	1,174
	91	230
	92	1,139
	93	2,610
	94	8.405
	95	4,415
	96	1,972 50
	98	1,440
	99	6,643
	100	3,458
	101	255
	102	167
	104	4,529
	105	4,867

Sections No.	106	$11,893		
	107	1,030	75	
	108	3,855		
	109	12,475		
	110	5,130		
	111	10,510		
	112	4,633		
	113	4,582	50	
	114	1,487	90	
	115	300		
	116	6,902	50	
	117	6,086	25	
	118	4,785		
				$172,303

MECHANICAL WORK.

Basin and pier at Bristol				4568
Tide lock				6,871
Locks No.	1	$830	62	
	2	190	87	
	3	590	15	
	4	81		
	5	1,181	41	
	6	745	47	
	7	618	17	
	8	1,136		
	9	550	20	
	10	1,221	13	
	11	1,802	50	
	12	474	88	
	13	598	62	
	14	477	80	
	15	615	87	
	16	492	67	
	17	793	30	
	18	520	85	
	19	518	10	
	20	4,845	80	
	21	1,147	50	
	22	3,480	10	
	23	3,681		
				$26,594 0
Aqueducts No.	1	$572	57	
	2	585	37	
	3	858	05	
	4	1,238	90	
	5	1,323	25	
	6	4,259	70	
	7	3,034	50	
	8	950	25	
	9	3,149	50	
				$15,972 0

Culverts No.	1	$40	
	2	254 09	
	3	370 22	
	4	209 97	
	6	143 54	
	7	204 62	
	8	322 72	
	9	526 20	
	10	593 19	
	11	219 87	
	12	266 75	
	13	515	
	15	68 95	
	16	278 70	
	17	210 50	
	18	80	
	19	1,646	
	20	1,066	
	21	1,235	
Amount on culverts			$8,251 82
Waste wiers No.	1	$200	
	5	100	
	8	193 60	
	9	200 50	
	10	152	
	11	121	
Culv't or waste way for Fackenthall's spring			150 00
Waste wiers No.	12	131	
	13	122	
	14	25	
	15	25	
	16	200	
	17	200	
	18	200	
	19	200	
	20	200	
Total amount on waste wiers			$2,270 10
Guard lock at New Hope			3,902
Dam at New Hope including contingent expenses preparatory to taking water into canal at that place			14,000
Guard lock at Easton			1,579 60
Lock and dam at Easton			10,000
Bridges from Bristol to Easton			25,652 17
Fencing canal from Bristol to Easton			14,962 04
Lock houses do do			8,500
Repairs, &c.			20 000
Total amount			$335,576 25

Delaware Division Pennsylvania Canal,

Point Pleasant, Nov. 20, 1829.

Thomas G. Kennedy, Esq. Superintendent.

Sir,—The foregoing statement exhibits the aggregate amounts of work remaining to be done of "every description" on the Delaware line of canal. It will be found by reference to my estimate made Nov. 20, 1828, that the actual cost of the canal will exceed considerably the amount of the original estimate. This, however may be accounted for in the cost of the guard lock and dam at New Hope, the outlet lock in the Lehigh dam, lock houses, inside slope walls and parapets on each side of the canal along the river sections, (for the safety of the travelling on the towing path and road), and occasional necessary changes in the plan and execution of the work; which have not been taken into consideration in any former estimate. Unforeseen difficulties also occur in the excavation of hard pan and rock, not unfrequently when previous calculations have been predicated on common earth excavation.

The sum total in this report is made mostly from actual measurements in detail, calculated at contract prices, and with liberal allowances where any item is at the estimate of the engineer.

The contracts on the line generally are progressing with skill and energy, excepting trifling deviations always attendant upon on a work of such magnitude.

The masonry of all the locks, from No. 1 to No. 19 inclusive, is completed, and on many of them nothing remains to be done; No. 20 would have been erected this season, only that it is located directly in front of, and occupies a part of the ground on which a grist mill now stands, where most of the hydraulic cement used on the line is manufactured. No. 21 will probably be finished in a few days, as a small proportion of the wood work only is wanting.

On Nos. 22 and 23, preparations are making to build them early in the spring. The dam, outlet lock, and guard lock, at Easton, are rapidly advancing towards completion, and will undoubtedly be finished early next season. All the culverts to No. 18 inclusive, are now done; No. 19 has been commenced, and would have been finished only for an early rise of water in the river, which retarded materially the operations of the contractors in getting in a foundation. The remaining two will be built as soon as the weather will permit in the spring.

The masonry of all the aqueducts on the line, it may be said, is completed; a few perch only on 7 and 9 remains to be done. The wood work or trunks of one, two and three, is also finished, or nearly so.

The contracts on bridges have been prosecuted with as much diligence as circumstances would permit, but are not so far advanced as I could have wished. This deficiency may be attributed to the difficulty of procuring timber, which can only be found at the head waters on branches of the Delaware, and must be brought down during the spring or fall freshets. It is therefore not unfrequently the case, that the most sanguine conclusions, based on those contingencies, fail entirely, which may furnish a substantial cause for the line not being completed south of New Hope, as was anticipated in the early part of the season. It may, however, be proper to observe in relation to putting the water into that part of the line, that the contractors for building the fence on that portion of the canal, have been subject to the same misfortunes in procuring materials, and consequently have not been able to complete but a small part of their contract. The fields are generally secured by fences running transversly to it, temporarily put up since the canal formation was completed. These must be removed in the event of putting in the water and the owners be subjected to the necessity of putting up fences parallel to the canal, or of leaving their fields open, which would indeed appear unnecessary, inasmuch as not more than two feet of water in the lowest stage of the river, could be put into the first level, until the proposed dam at the head of Wells' falls is erected, or the canal completed from the Lehigh to that place.

From New Hope to Easton, the greater part of the work remaining to be done is on sections, and may be advantageously prosecuted during the winter months, unless they should be characterized by unusually severe frosts. If this should not be the case, and the winter prove favourable, a reasonable hope may be indulged that the whole line will be completed and ready to receive the water for navigable purposes, by the first of July next, a few days short of three years since the first survey was commenced.

I am, respectfully,
Your obedient servant.
H. G. SARGENT, Engineer.

No. 1

NORTH BRANCH DIVISION.

Report of John Mitchell. Esq. Acting Commissioner on the North Branch Division of the Pennsylvania Canal.

Canal Office, Danville, Nov. 25, 1829.

To the Board of Canal Commissioners of the Commonwealth of Pennsylvania.

GENTLEMEN:

The superintendence of the north branch division of the Pennsylvania canal, extending from the Nanticoke falls to the town of Northumberland, a distance of about fifty-five miles, was committed to my care in June last.

To give you a statement in detail of the various operations, and of all the circumstances necessarily connected with those operations upon a line of so great an extent, would swell this paper beyond the usual limits of a report. I therefore refer you to the several documents herewith transmitted, marked No. 1, No. 2, and No. 3. together with the report of Charles T. Whippo, the principal engineer on this division. By referring to these documents it will appear that the whole sum expended for the construction of the canal and other works necessarily connected therewith on this line, amounts to five hundred and sixty thousand and seventy-six dollars and eithty-four cents. Of this sum, about four hundred and ninety-three thousand dollars have been paid in cash, and the balance in certificates or *scrip,* issued under the sanction and authority of the board. The expenditures above mentioned relate exclusively to payments made to contractors on the line for labour performed and materials furnished for the construction of canal and other works therewith connected ; a more detailed account of which will appear in document No. 1.

Here it may be proper to state that, according to the estimate of Doctor Whippo, which is also herewith transmitted, the sum of two hundred and twenty-five thousand eight hundred and fifty-five dollars, will be required for the payment of the unfinished part of all the work on the line, including lock houses and other incidental expenses. And this is believed to be a liberal estimate, and that the actual expense will be more likely to fall short of that sum, than to exceed it.

The whole amount of damages of every description paid upon this line, together with those contracted for and authorised to be paid, is two thousand seven hundred and seventy dollars and seventy-five cents—a list of which, and of the sum paid to engineers and others employed on the line during the *last year,* amounting to fifteen thousand two hundred and thirty-one dollars, will be found in the paper marked No. 2.

The portion of this division which was authorised to be put under contract by an act of assembly of the 22d of April, 1829, was advertised according to law, and allotted to contractors on the fifteenth day of July last. The part thus allotted, consisted of twenty detached sections, of about half a mile in length, each, and completed the whole line from Nanticoke to the forks of the river at Northumberland. The contractors have promptly entered upon their respective sections ; and notwithstanding the general embarrassment which was to be apprehended from the failure of the state funds, several of these sections have been completed, and the remainder are in such a state of forwardness as to leave no doubt of their entire completion in the early part of the next season.—The names of the contractors, and the prices at which these sections have been let, as well as the other contracts which have been entered into since the last annual report, for the construction of the Nanticoke dam, locks, aqueducts, &c. may be seen in the list marked No. 3. The construction of the dam, locks and aqueducts were contracted for, before I came upon the line.

o 2.

ennsylal, from Nanpricc ac amount in-
contiluding the esti

s.				
etach roc lan.	Pud.		Amount paid in cash and scrip.	
			6403	
700			12612	
			1920	
4100	300		8419	
1200	400		11614	
9000			11168	
1032	300		7567	99
30	2354		4544	
			6752	16
			[illegible]	

yond the usual limits of a report. I therefore refer you to the several documents herewith transmitted, marked No. 1, No. 2, and No. 3. together with the report of Charles T. Whippo, the principal engineer on this division. By referring to these documents it will appear that the whole sum expended for the construction of the canal and other works necessarily connected therewith on this line, amounts to five hundred and sixty thousand and seventy-six dollars and eithty-four cents. Of this sum, about four hundred and ninety-three thousand dollars have been paid in cash, and the balance in certificates or *scrip,* issued under the sanction and authority of the board. The expenditures above mentioned relate exclusively to payments made to contractors on the line for labour performed and materials furnished for the construction of canal and other works therewith connected ; a more detailed account of which will appear in document No. 1.

Here it may be proper to state that, according to the estimate of Doctor Whippo, which is also herewith transmitted, the sum of two hundred and twenty-five thousand eight hundred and fifty-five dollars, will be required for the payment of the unfinished part of all the work on the line, including lock houses and other incidental expenses. And this is believed to be a liberal estimate, and that the actual expense will be more likely to fall short of that sum, than to exceed it.

The whole amount of damages of every description paid upon this line, together with those contracted for and authorised to be paid, is two thousand seven hundred and seventy dollars and seventy-five cents—a list of which, and of the sum paid to engineers and others employed on the line during the *last year*, amounting to fifteen thousand two hundred and thirty-one dollars, will be found in the paper marked No. 2.

The portion of this division which was authorised to be put under contract by an act of assembly of the 22d of April, 1829, was advertised according to law, and allotted to contractors on the fifteenth day of July last. The part thus allotted, consisted of twenty detached sections, of about half a mile in length, each, and completed the whole line from Nanticoke to the forks of the river at Northumberland. The contractors have promptly entered upon their respective sections ; and notwithstanding the general embarrassment which was to be apprehended from the failure of the state funds, several of these sections have been completed, and the remainder are in such a state of forwardness as to leave no doubt of their entire completion in the early part of the next season.—The names of the contractors, and the prices at which these sections have been let, as well as the other contracts which have been entered into since the last annual report, for the construction of the Nanticoke dam, locks, aqueducts, &c. may be seen in the list marked No. 3. The construction of the dam, locks and aqueducts were contracted for, before I came upon the line.

No. 1.—A list containing the quantity of work done on each section of the North branch division of the Pennsylvania canal, from Nanticoke falls to Northumberland, showing also the cost of the said work at the contract prices, and the amount including cash and certificates paid to each contractor including the estimate taken the 20th day of November, 1829.

Names of contractors.	No. of section		Grub. & clear	Cubic yards.							Perches.		Sq. yards	Feet lineal.		Perches wall founda.	Remarks.	Cost of work done.	Amount paid in cash and scrip.
				Excava.	Embk't	Solid rock.	Slate.	Detached rock	Hardpan.	Pud.	Vert. wall	Outside slope wall.	Inside wall	Square timber.	Round timber.				
Barnum & Brown	1	dam																8003 51	6403
Do do	1	canal	8300	25000	1000	300		700	4000		7800							14765	12612
Do do	1	guard lock																2400	1920
Jacob B. Barse	2	canal and road	90	10000	7000	700		4100	3800	300	4960					2700		9273	8419
Patterson, Tamany & Co	3	canal	84	21000	17000	1400		1200	3000	400	4600					2000		15229	11614
Henry Cady	4	Do	90	5500	19000	2000		9000	2000		5800		704			5800		13959 68	11168
Frederick Pratt	5	canal and road	50	42025	4590			1032	4500	300	1694		1544			499	completed	7567 99	7567 99
Henry J. Fritcher	6	canal	42	42069				30	267	2554								4679 02	4544
Bargy & Mack	7		25	61136													completed	6752 16	6752 16
Pratt & Treat	8		10	2206													re-let	219 57	176
Reynolds & Reynolds	8		25	49898					4000									7062 25	6778
R. M'Reynolds	9		96	29531				80	14429								completed	6693 64	6693 64
Anthony Groves	9	wall											1538					338 30	281
W. W. Gitt	10	canal	96	53979	1466			1100	5964				2715					8431 76	8131
Tuttle, Ferrell & Co	11	Do	100	42401			20	697	2485	728			549					5988 29	4790
George Chahoon & Co	11	safety gates																1660	1328
R. M'Reynolds	12	canal	90	26700				1000	2000		1839		480					5101 21	4081
Dodd, Hale & Drake	13	Do	10	13677													re-let	1446 08	1157
Anning O. Chahoon	13	Do	10	23900														2997 50	2398
Dodd, Hale & Drake	14	canal and road	20	20000	3000	270		334	500			1456				50		3320 28	2656
Petrikin, Tamany & Co	15	Do do	90	1000	24050			7400	2000			3500				800		10061	8749
A. Y. Moore & Co	16	Do do	100	6000	16200	1600		7400	1800			3900						10042	8034
William Pratt	17	do do	75	21000	3540	1070	600	5640	5100			2400	2250					8185 30	6548
John R. Dean	18	canal	25	5724				1267	5000				2265					7158 51	6527
William Pratt	19	do	30	45000	1000	115		511	3500		2521		826			200		7862 17	6290
Austin Day	20	do	210	17672	5291	2208		4415	3550	400	6629					500		13458 61	11820
Alexander Beard	21	do	15	28886				16	575								completed	3602 32	3602 32
Charles & Hiram Cook	22	do	100	24441		12		100	1100			747						5294 19	5294 19
Do do	23	do	100	31416		12		150	2078			2181				200		5499 04	5499 04
James Davis for Shields	24	do	100	23947	1200				1600				96				completed	3126 43	3126 43
Charles & Hiram Cook	25	do	25	23000	842			343	4000				1173					3762 56	3010
Frederick Pratt	26	do	242	24402	2200			2000	4347			4900	2320			105		8505 19	7804
Forsyth, Wilson & Jones	27	canal and road	212	14451	4500	100		1657	4750	1500		5460	1842					8915 51	7532
Hugh Stewart	28	do do	242	15000	7504	600		1700	5163	600		5064					completed	6825 72	6825 72
Stevens & Buchalew	29	canal	231	15067	170	100		1504	3300			5045	729			380	completed	6775 89	5517
Beard & Koons	30	canal and road	200	13000	5000	1780		4900	1600	200		3385				4400		8841	7896
Do do	31	canal	50	20054				462	5800				1388				completed	4392 69	4392 69
Flanagan & Eagan	32	canal and road	50	20892		75		1315	11200		676		1988					6159 08	6159 08
Kaine & Brannan	33	canal	15	16503					5000									2965 03	2965 03
Phillips & Plues	34	do	84	10758	2034			250	2519				474 pr.				completed	2751 62	2751 62
Do do	34	aqueduct															part done	907 50	726
Stephen Vaughn	34	clearing creek	60	1443				1000	3500									1459 50	1168
Samuel Everett	35	canal	35	7145	2472				1100								completed	1311 42	1311 42
Do do	36	do	150	5000	8000	12537		3276	500	4000	4450					4800		13561 30	12916
Do do	37	do	120	10200	4500	500		200	1000	5650						2200		5905	5553
Thomas Moore & Co	38	canal and road	175	14600	3000	4600		240	350		1970	300						5326 90	4261
Do do	39	do do	160	5300	22000				500			3600				1500		6558	5247
Tuttle, Ferrell & Co	40	canal	30	13724				37				942					completed	1924 22	1924 22
Rodman & Hiram Reynolds	41	do	75	14855	1761				1500				54				do	1886 46	1886 46
Tuttle, Ferrell & Co	42	canal and road	160	14651	38032			150	1550			4282				1859	do	2045 27	2045 27
Beach & Everett	43	canal	180	11600	36000			40	2900			4400				75		10822 25	8658
Do do	44	do	35	53000	4800			78	3500									5087 50	4070
Alexander Jameson	45	do	15	450	14698												do	2184 51	2184 51
Thomas M. Scott	46	do	150	8144					1300								do	2177 16	2177 16
Josiah T. Beach	46	2 bridge abutments																637 99	637 99
Jesse Hick's executor	47	canal	275	12172	4800		1400	300	2000									3176 92	2541
Ferrell & Kelly	48	do	225	14401	1526	500	1250	2348	2500				5244				do	5374 76	5374 76
Kaine & Brannan	49	do	15	6548	8064	71		450	4000				1503				do	2540 95	2540
M. F. Simons & Crolley	50	do	50	18236	6121	60	300	4452	3000				5082				do	6038 68	6038 68
Robert Reston	51	do	75	12600	4600	100	600	1550	4500				4627				nearly completed	4031 74	3425

nal, from Nanticoke

	Perches.		S	
'ud.	Vertical wall.	Outside S. wall.	s	t paid in nd scrip.

A list of work done on the north branch division of the Pennsylvania canal, from Nanticoke falls to Northumberland, &c.—continued.

				Cubic yards.							Perches.		Sq. yards.	Feet lineal.					
Names of contractors.	No. of sect.		Grub.& clear.	Excava.	Embnk't.	Solid rock.	Slate.	Detached rock.	Hardpan.	Pud.	Vertical wall.	Outside S. wall.	Inside slope wall	Square timber.	Round timber.	Wall found.	Remarks.	Cost of work done.	Amount paid in cash and scrip.
Kelcey, for App & Hodge	52	canal	55	10552	26516	900	1625	150	1600			5000	1760			251	nearly completed	89921 06	89137
Nathan Beach	62	lock No. 1																342 42	274
Boyer, Petrikin & Co	53	canal	60	12100	13600	570	2000	960	3600	600		1700	1230			100		7381 55	5905
Elijah Russell	54	do	174	14203	015	135	1500	1561	2500	100			1283					5849 86	5849 86
Barse & Muller	55	do	45	1000				644	500			065					re let	975 75	688
Sybert & Sybert	55	do		10453	2153			1800	3300			32253						5831 06	4659
Blanchard & Holden	56	do	180	14513	4444	-		2760	8035	1701		4575	312				completed	7736 80	5419
Stanton & Arnold	57	do	84	11507	9140			445	4200	100	153						do	3166 46	3166 46
Do do	57	road		75	2249						865							1659 01	1659 01
Do do	57	2 culverts																95	95
Phillips & Plues	58	canal	90	8626	21735			551	1440	3390		1772	340	31614	42295		do	10902 67	10902 67
Do do	58	ex. lock pit																843 62	843 62
Do do	58	puddling lock																289	289
William M'Kelvy	58	lock No. 2																1082 10	974
Phillips & Ploes	59	canal	250	45156										37600	50000		nearly completed	11214 60	8972
Do do	60	do	250	42000				575				930		32700	45000	300	do do	11531 50	9215
Do do	61	do	45	13000	500								1816					1734 58	1388
Daniel Sponenberg	62	do	90	15355	60	40		2086	500				4600				completed	3426 90	3426 90
Michael O'Brien	63	do	42	9734	2568			1101	2600				3004				do	2502 65	2502 65
John & Jesse Bowman	64	do	50	20036	14091			3182	4608	240			8563				do	6930 03	6930 03
Do do	64	aqueduct															nearly completed	2540 40	2465
Do do	64	bridge																253	253
William Thomas	64	fence																108 37	108 37
Sponenberg & Charles	65	canal	45	8517	8459			1658	1050				4972				completed	3688 20	3688 20
Daniel Sponenberg	65	culvert																45 50	45 50
Do do	65	bridge abutment																234	234
Charles & Hiram Cook	66	canal	225	12600	500		2600	1800	1000				3550					3934	3148
John H. Bowman	67	do	35	5482	12534	50	3000	150	540				9972				completed	3632 68	3632 68
John Thompson & Millard	68	do	225	12748	5252		2000	1395	1200		330		3568				do	5062 55	5062 55
Do	68	bridge abutment																331 50	331 50
Anthony Groves	69	canal	335	15745	2650		850	920	3000				3602				do	4297 60	4297 60
Hargy & Mack	70	do	255	12114	10732	85		2255	5000		184		5418				do	4694 52	4694 52
John Knorr	70	birdge abutment																334 75	334 75
Uzal Hopkins	71	canal	45	8800	1000				2000								nearly completed	1315	1052
Do do	71	ex. lock pit		800					1754									505 88	505 88
William M'Kelvy	71	lock No. 3																1253	1128
John Knorr	71	bridge abutment																268 50	268 50
Daniel Sponenberg	72	canal	55	8279	6145			40	2000	40							completed	2127 20	2127 20
Do do	72	culvert																61 50	61 50
Do do	72	bridge abutment															do	292 50	292 50
Jacob Custenbader	73	canal	378	14600	4000			412	2000		125		1237					3514 89	2812
Do do	73	bridge abutment																314 65	314 65
Samuel & Thomas Webb	74	canal	55	7100	2100			400	850									1298	1039
Do do	75	do	60	4500				30										586 50	409
Do do	76	do	60	5100					200									573 50	459
F. B. Swaby	77	do	65	5700	3800			50										1215 50	972
Do do	78	do	50	6500	850			100	300									1028 75	823
M. & L. F. Simons	79	do	50	9100	5200			100	2200				184					1760 62	1408
Dibble & Adams	80	do	45	13091	3847			109	500	500			326				do	1853 36	1853 36
Do do	81	do	87	6000	2358			65	700								per cent forfeited	1071 21	857
George Shelmire	81	do		3450	6700				500	40								1234 25	988
Potter & M'Cormick	82	do	350	9500	4700			300	5900				450					2945 75	2506
Russel & Jackson	83	do	300	7100	7300	-	210	400	600				1050					2440 10	1952
Do do	83	basin	45	600														117	92
Flood & Creelman	84	canal	75	10579	7904			110	600	40			274				completed	1945 67	1945 67
Do do	84	ex. lock pit		890					960									384 40	384 40
Do do	84	puddling lock		850						400								273	219
Do do	84	culvert																110	110
William M'Kelvy	94	lock No, 4															part done	986 58	897
Dibble & Adams	85	canal	40	8600	5700				100								completed	1914 92	1914 92
Robert Reston	86	do	100	6100	4200	500	1800	100	800									1969	1586
David Cleaver	86	aqueduct															re-let	739 12	592
C. & H. Cook	86	do																2409 80	1928
William M'Kelvy	86	lock No. 5																495	396
Robert Reston	86	lock pit																418 50	355

Section No. 28, which passes through the town of Northumber-
d, and connects with the west branch division, has not yet been
nmenced. This delay has been occasioned by an opinion being
ertained of the probable advantage which would result to the
te, from an abandonment of the present plan and location
ough the town, and adopting that of locking into the north
nch immediately above the Northumberland bridge. The pool
med by the Shamokin dam, will at all times, afford a sufficient
ntily of water at this point: and a comparison of the estimated
enses, attendant upon the respective plans, shews a difference
favour of locking into the north branch of at least 17,000 dol-
s. Should the alteration be adopted, it is proposed to construct
ow path along the bank of the river adjacent to the town, the
t of which will be very small; and the damages resulting from
destruction of buildings and other property in the town will
avoided.—It is also believed that the path would not be used
cept for a few days during the highest stage of the water; and
t at all other times the boats would be propelled by oars across
pool, while the horses would be sent round by way of the
dge now constructing across the west branch, and meet the boats
their place of entrance on the opposite side.

This subject, with a sketch exhibiting the practicability of the
n was, upon a former occasion, presented to the board, but no
ler in relation to it has yet been taken. As it proposes an im-
rtant alteration in the present actual location of that part of the
nal; and should the alteration take place, it would no doubt ex-
e some degree of feeling amongst the people on both branches of
river, it might probably be well to submit the question to the
gislature for their decision. At all events should the board
ink best to adopt the alteration, it will be necessary to submit
measure to the Governor for his approbation; and should the al-
ration be adopted or not, I apprehend no difficulty in complet-
g all the work connected with this section, (whether by entering
river above the bridge, or by continuing the present location,)
time to meet other more difficult parts of the line. This section
ntains nothing but easy excavation of earth; and the work which
uld be necessary to drop into the river above the Northum-
rland bridge will consist, chiefly in the construction, of a lock.

I now come to speak of the most unpleasant part of the subject
ating to the operations on this division, I mean the failure of the
ntractors to complete the Nanticoke dam this season. For par-
ulars relating to this subject, I refer you to the letters accompa-
ing this report, and marked A. B. C. D. from which it will ap-
ar that the idea of completing the dam this season, was aban-
ned from motives of prudence. The course I adopted and pur-
ed in relation to the contractors on this job, I conceive to be the
ly one under all the circumstances, that would best promote the
erest of the state, and secure the works against the damages to
apprehended from the spring freshets. Under a full conviction
t the dam could not be brought to a state of completion and

consequent security, this season, I abandoned the idea of puttin any portion of the timber into the water, in order that the undivided attention of the contractors might be bestowed upon othe parts of their job, which are intimately connected with the security of the dam, as well as of the canal immediately below—unles section No. 1. and the guard lock are completed so as to exclud the water during a freshet, considerable damage to many parts o the canal must be the consequence; and in order that these migh be completed, and the benefit to be derived therefrom secured, permitted the dam to be given up for this season. This course believed to be preferable to that of declaring the job abandoned and reletting it.

It is well known to every person experienced in these matters that in every case of an abandonment of a job of this magnitude not less than a months time will be lost in effecting a change o contractors; which would in this case have occasioned an additional delay without any absolute certainty of gaining an advantage sufficient to justify the measure. The contract could no have been fairly abandoned before the 14th of August; and such was the state of the works at that time, that the loss of one month would have occasioned inevitable loss of property, from want o security against the spring floods.

This is the justification I offer for pursuing the course I did in relation to the dam. For the public security, I was compelled not only to do violence to my own feelings, but also to mortify the feelings of others who felt deeply interested in the early completion of the dam, by permitting it to be delayed for this season. It may however be proper to state that the zeal lately manifested by the contractors in the prosecution of the work and the experience which they have by this time acquired, lead to a full conviction that every part of their job; the abutments of the dam on both sides of the river; the section with the guard lock and guard wall in connection with the abutment, and the framing timber for the dam will be so far completed as to ensure the completion of the whole at the earliest possible period next season.

Under the acts of assembly now in force in relation to canals and rail roads, I apprehend much difficulty will arise in redeeming the certificates issued to contractors. The superintendents and acting commissioners are prohibited by law from drawing from the treasury at any one time more than fifty thousand dollars, without settling an account. When funds shall be provided by the commonwealth for the payment of the certificates, the accountant department will be crowded with accounts, in consequence of which delay must be occasioned. Moreover, the security of the state would require that the certificates accompany the estimates upon which they are founded, before a credit for the payment thereof can be expected. Upon this line that requirement would be attended with much inconvenience; because, for the accommodation of contractors we were compelled to issue certificates for small sums, dividing many of the estimates into several parts. Many a canal, from Nanti

		Perches.			
n.	Pud.	Vert. wall	Outside slope wall.	work .	Amount paid in cash and scrip.
					8727
		896		01	855
	4500	3674	3422	88	10376
		3650	2800	50	9177
				40	216
					506
				56	1881 56
				47	1857 47
	100				

consequent security, this season, I abandoned the idea of putti any portion of the timber into the water, in order that the undivi ed attention of the contractors might be bestowed upon oth parts of their job, which are intimately connected with the secur ty of the dam, as well as of the canal immediately below—unle section No. 1. and the guard lock are completed so as to exclu the water during a freshet, considerable damage to many parts the canal must be the consequence; and in order that these mig be completed, and the benefit to be derived therefrom secured, permitted the dam to be given up for this season. This course believed to be preferable to that of declaring the job abandone and reletting it.

It is well known to every person experienced in these matter that in every case of an abandonment of a job of this magnitud not less than a months time will be lost in effecting a change contractors; which would in this case have occasioned an add tional delay without any absolute certainty of gaining an adva tage sufficient to justify the measure. The contract could n have been fairly abandoned before the 14th of August; and suc was the state of the works at that time, that the loss of one mont would have occasioned inevitable loss of property, from want security against the spring floods.

This is the justification I offer for pursuing the course I did i relation to the dam. For the public security, I was compelled no only to do violence to my own feelings, but also to mortify the fee ings of others who felt deeply interested in the early completio of the dam, by permitting it to be delayed for this season. It ma however be proper to state that the zeal lately manifested by th contractors in the prosecution of the work and the experienc which they have by this time acquired, lead to a full conviction tha every part of their job; the abutments of the dam on both sides of th river; the section with the guard lock and guard wall in connec tion with the abutment, and the framing timber for the dam will b so far completed as to ensure the completion of the whole at th earliest possible period next season.

Under the acts of assembly now in force in relation to canals and rail roads, I apprehend much difficulty will arise in redeeming the certificates issued to contractors. The superintendents and acting commissioners are prohibited by law from drawing from the treasury at any one time more than fifty thousand dollars, without settling an account. When funds shall be provided by the commonwealth for the payment of the certificates, the accountant department will be crowded with accounts, in consequence of which delay must be occasioned. Moreover, the security of the state would require that the certificates accompany the estimates upon which they are founded, before a credit for the payment thereof can be expected. Upon this line that requirement would be attended with much inconvenience; because, for the accommodation of contractors we were compelled to issue certificates for small sums, dividing many of the estimates into several parts. Many

A list of work done on the north branch division of the Pennsylvania canal, from Nanticoke falls to Northumberland, &c.—concluded.

				Cubic yards.							Perches.		Sq. yards	Feet lineal.					
Names of contractors.	No. of section		Grub. & clear	Excava.	Embk't	Solid rock.	Slate.	Detached rock	Hardpan.	Pud.	Vert. wall	Outside slope wall.	Inside S. wall	Square timber.	Round timber.	Perches wall founda.	Remarks.	Cost of work done	Amount paid in cash and scrip.
Henry Stetler	87	canal	150	2200	5100				100									$908	$727
Beattys, Covell & Co.	88	do	75	805	4524	70					896							1018 01	815
Joseph Paxton	88	do	40		25500	1100				4500	3674	3422				700		11844 88	10376
George H. Willits	89	do	125	6900	31500	550		690			3650	2800				700		10470 50	9177
Midler & Southerland	90	do		2680					250									269 40	216
Michael M'Cormick	90	do		5800					200									582	506
Patrick Brannan	91	do	30	14157	5223			14	1500				10				completed	1881 56	1881 56
Daniel Sponenberg	92	do	230	16692														1857 47	1857 47
Lewis Horton	93	do	340	6720	600	15		380	2900	100								1765 82	1412
Midler & Southerland	94	do	90	12500	7500	800	340	1150		150	65	2800	1300					5497 50	5198
Peacock & Everett	95	do	220	950	3395	85		100									re-let	734 58	588
James Appleton	95	do		12500	600			1000			4600							6725	6053
Peacock & Everett	96	do	200	4200	29000	1850	400	890				5380						9028 25	8396
Do do	96	road	100		2400	1650	500	300			1120							2242	1220
David Petrikin	97	canal	100	2350	8200			30										1467	1174
Do do	97	road	40	800	100													110	90
M'Reynolds & Miles	98	canal	260	4500					400									1623	1299
Flood & Creelman	99	do	55	9495	9943				1500									2077 27	2077 27
Do do	99	2 culverts															completed	220	220
Blanchard & Holden	100	canal	45	12580	1349			262	1600				786				completed	1964 80	1964 80
A. Mench	100	fence																247	198
John Houston	101	canal	60	6200	15100	300	400	160	109	1800		1900						5121 40	4097
Do do	101	ex. lock pit																587 30	587 30
William M'Kelvy	101	lock No. 6																510	408
Samuel Carnahan	102	canal	30	7839	4122	15		10	800									1320 08	1320 08
Morrow & Brady	103	canal and bailing	60	12274	13695		30		400		5							2579 55	2579 55
Do do	103	3 culverts																232	232
Joseph Maus	104	canal	246	11400	850				2100								nearly completed	1798 25	1439
Donaldson & Montgomery	105	do	30	11513	5247				1300	40							do	1636 54	1616
Do do	105	2 culverts																75	75
Do do	106	canal	20	9200	15000												do	2164	1732
William & Henry Colt	106	aqueduct															part done	350	280
David Petrikin	106	bridge															do	620	620
Donaldson & Montgomery	107	canal	120	18000	9000			700	3100		275	280						3486	2789
Do do	107	1 culvert																50	50
Robert Walker (omitted)	102	road	10	625	250		550											256 25	256 25
Samuel Huoter	108	canal	90	10800	11200			500	1100	600			100					3017	2674
John M'Govern	109	do		11500	8100			400		1800								1783	1427
Petrikin, Moore & Co	110	do	28	19721	5227		2681	182	1200	952								3951 89	3440
William Colt	111	do	100														re-let	230 50	184
Samuel Yorks	111	do	60	2500	10000			507			290	2900				400		5648 80	5648 80
Morrow & Brady	112	do	40	7500	12100													2152	1722
John Flood	113	do	65	9900				1100	2900				1890					2130 20	1705
William A. Martin	114	do	40	4600				1280	1000				460					1414 80	1132
Petrikin & Boyer	115	do	40	7800				2100	900									2095	1676
Adam Young & Co	116	do	125	6300				650	650				880					970 40	777
John D. Petrikin	117	do	170	3600	1100		30	550	900									1071	857
Farrell & Kelly	118	do	163	6500	500	900	1060	500	500				160					1890 80	1514
Alexander M'Ewen	119	do	125	2500	1100			35										498	400
Bollinger & Wassan	120	do	30	600			100	10										127	
Nowlin & Parrell	121	do	312	10637	4550		90	626	2250				1736					2622 32	2098
D. & R. Cande	122	do	100	1450				42	300									298 75	167
Crolly & M'Laughlin	123	do	300	7800	3600			700	3000				600					2416	1939
Joseph Nourse & Co	124	canal and road	342	5500	2600	10	100	650	500				396					1758 95	1407
Do do	125	canal	45	13000		100	200	1500	600				4100					2900	2320
John Moore	124	aqueduct																254	204
Joseph Nourse	125	fencing																56 25	45
James & William Wilson	126	canal	39	9800	5000		200	420	500	100								1986	1589
Hoar & Van Patton	127	do		4951	2792					27								696 20	432
William M'Kelvy	126	lock No. 7															part done	1048 25	944
Andrew Byrne	126	lock pit																640 75	640 75
Whole cost of work done																		$622,527 13	$560,076 84
Deduct the amount paid																		$560,076 84	
Back per centage due to contractors																		$62,450 29	
To which add the amount of scrip issued																		$167,000 00	
The whole amount due to contractors, including scrip and back per centage																		$229,450 29	

No. 2.—A LIST of the Superintendents, Engineers and others, who have been employed on the North Branch Division, since the return made in November 1829, exhibiting also the number of days service rendered by each person, and their respective wages.

Persons names.	Situation or employment.	Periods to which payments have been made.	Time of service.	Wages.	Am't paid to each.	REMARKS.
Thomas Woodside	Superintendent	up to May 31 1829	182 days.	$3 00 pr. diem	346 60	Mr. Woodside was succeeded by J. Mitchell, A. C.
Matthew R. Stehley	Super. of wood work	July 13	38	3 00	114 00	Appointed principal assist. engineer, July 13, 1829.
John Mitchell	Acting commissioner	Nov. 20	148	3 00	444 00	
Ellis Hughes	Clerk	Nov.	331	2 50	827 50	
					1931 50	

ENGINEER DEPARTMENT.

Charles T. Whippo	Principal engineer.	up to July 10, 1829	3 quarters	2000 per ann.	$1500	Continues on the line
John Bennet	Princpal assis. engineer	July 30	298 days	$4 a day	1172	do do
P. H. Petrie	do do	July 13	368	4	1309	Mr. Petrie left the line July 13, 1829, he had not been paid for some time previous to the last return.
Matthew R. Stealey	do do	Oct. 30	109	4	436	Continues on the line
Thomas Bennett	Assistant engineer	do	349	2	698	do do
George Mack	do do	Oct. 10	265	2	730	do do
Matthew R. Stealey	do do	June 3	238	2	476	was appointed superintendent of woodwork June 3
Miller Fox	do do	May 31	180	2	360	left the line May 30th
George Shoemaker	do do	Oct. 30	365	2	730	continues on the line
Lord Butler	do do	31	350	2	700	do do
Wm. H. Petrie	do do	June 30	192	2	384	left the line June 30th
David L. Scott	do do	Oct. 31	132	2	264	continues on the line
H. B. Robinson	do do	June 26	47	2	94	left the line June 26th
Thomas E. Paine	do de	Jan. 10	92	2	184	do January 10th
H. B. Hoyt	Target man or rodman	July 30	81	1 50	121 50	continues on the line
George P. Bowen	do do	Oct. 30	318	1 50	477	do do
H. B. Robinson	do do	May 10	176	1 50	264	appointed assistant engineer May 10th
James Wilson	do do	Oct. 31	127	1 50	190 50	continues on the line
Francis G. Murray	do do	Dec. 6, 1828	73	1 50	109 50	left the line December 6, 1828
Samuel Ryan	do do	June 28, 1829	174	1 50	261	do June 28, 1829
James M. Chamberlin	do do	Oct. 10	380	1 50	570	continues, his pay commenced before last return.
Lintford B Coats	do do	June 28	199	1 50	298 50	left the line June 28th
Nathan B. Evans	do do	Oct. 31	195	1 50	292 50	continues on the line
Niles Bentley	Axeman	Dec. 6, 1828	40	1	40	left the line December 6, 1828
Stephen R. Clark	do	Jan. 20, 1829	66	1	66	do January 20, 1829
John M'C. Young	do	Oct. 30	125	1	125	continues on the line
William M'Namee	do	March 20	118	1	118	left the line March 20th
Robart M. Irwin	do	Oct. 30	87	1	87	continues on the line
Richard R. Catley	do	July 30	11	1	11	left the line July 30th
John A Chahoon	do	March 10	131	1	131	do do
James Wilson	do	June 27	207	1	207	appointed targetman June 27th
do do	do	Oct. 30	171	1	171	continues
Isaac Welsh	do	10	337	1	337	do
William B. Dodson	do	Aug. 31	58	1	58	left the line August 31st
John Achenbach	do	May 26	126	1	126	do May 31st
James Lemon	do	Oct. 31	202	1	202	continues on the line
	Amount paid to engineer				13,300 50	
	Add superintendents and clerk's wages				1,931 50	
	Whole amount paid to persons employed on the line during the year				15,231 00	

DAMAGES PAID ON THE NORTH BRANCH DIVISION.

To whom paid.	For what paid	Sec.	Amt. paid.
Isaiah Longshore	damage to building	38	$296 75
Sebastian Seybert	removing building	53	20
William Trescott	rebuilding log-way to saw mill	53	110
Joseph Low	damage to garden	56	10
John Snyder	removing tan house	57	65
George Farrow	removing house and shed	57	65
Phillips and Plews	removing barn and house	58	136
Samuel Headley	removing & rebuilding toll house	57	330
Daniel Stainer	damage to building and garden	57	49 50
Henry Wagoner	damage to crops	61	10
Joseph Millard	damage to buildings	68	75
John Knox	damage to oven and fence	70	10 30
Philip Miller	removing buildings	78	20
John Young	removing and rebuilding stable	106	58 60
George Sweney	damage to fence	106	7 65
same	damage to real estate	106	750
Issac Cornelison	removing buildings	106	22
David Petrikin	do do	106	35
Colt and Donaldson	do do	106	125

To whom paid	For what paid.	Sec.	Amount.
William Colt	damage to stable	110	15
John Powell	damage to crops	121	19 73
William Lloyd	removing buildings	127	20
Charles White, in part	damage to real estate	106	213 32
	Whole amount of damages paid		2464 07

Damages contracted to be paid.

To whom paid	For what paid.	Sec.	Amount.
Charles White, balance	damage to real estate	106	186 68
Martin M'Collister	removing buildings	106	30
Alexander Montgomery	removing plaster mill (res. of board)	107	60
Joseph Nourse	removing buildings	124	30
			306 68
			2,770 75

No. 3.—A list of the contracts entered into for the construction of the canal and other works connected therewith, since the last annual return, made in November, 1829; together with the prices agreed to be paid for the several items of work. The first 20 sections contained in the following list, complete the whole distance of canal, from Nanticoke falls to the locks of the river at Northumberland, being a distance of about 55 miles. They were allotted to contractors on the fifteenth day of July last, notice of the letting thereof, having been first given, according to law.

For the construction of canal.

No. of Sections.	Contractor's Names.	Date of contracts.	Per cubic yard, for							Per perch.		Per square yard.
			Excavation.	Embankment.	Solid ruck.	Slate rock.	Detached rock.	Hard pan	Puddling	Vertical wall.	Outside slope wall.	Inside slope wall.
74	Sam. & Thom. Webb	4 Aug. 1829.	10 cents	14 cents	50 cents	30 cents	30 cents	14 cents				
75	do do	do do	11¼	14	50	30	30	14				
76	do do	do do	8½	14	50	37½	44	30	Est.	75 cents	60 cents	20 cents
77	F. B. Swaby	5 Aug. do	11½	12½	50	40	40	17				
78	do	17 do do	11½	12½	50	50	50	25				
79	M. & L. F. Simons	21 July do	7¼	12½	50	35	45	25	37 cents			
91	Patrick Brannan	17 do do	7¾	8	46	32	34	22	20	38	39	
92	Daniel Sponenberg	18 do do	9¾	10	20	15	20	15				
93	Horton & Millard	3 Aug. do	8½	12½	87½	25	29	23	12½			
97	David Petrikin	do do	7	14½	75	46	45	22				
98	And. M'Reynolds & Co.	17 July do	8½	10	50	35	40	20	20			
112	Morrow & Brady	17 do do	8	12½	55	20	40	14	14	60	60	E.
113	John Flood	22 do do	7½	8		25	37½	20				
114	William A Martin	3 April do	8	6¼	65	43	55	22		70	90	
115	Petrikin & Boyer	16 July do	10	12		40	50	25		50	62½	
116	Adam Young & Co.	18 do do	7½	8	40	20	18	15	19		57	
117	John D. Petrikin	10 Aug. do	7¾	14	60	45	45	23				
118	Farrell & Kelly	18 July do	7½	10	50	40	37½	20				
119	Alexander M'Ewen	26 do do	8½	13	60	45	50	23				
120	Bolinger & Wassen	17 do do	8¾	10	50	42	29	18				

SECTIONS which have been re-let after abandonment by the first contractors.

No. of Sections.	Contractor's Names.	Date of contracts.	Excavation.	Embankment.	Solid ruck.	Slate rock.	Detached rock.	Hard pan	Puddling	Vertical wall.	Outside slope wall.	Inside slope wall.
8	Rodman & H. Roynolds	Jan. 10, 1829	12½ cents	14 cents	49 cents	25 cents	35 cents	20 cents	20 cents	50 cents	50 cents	25 cents
13	Anning O. Chahoon	do 22 do	12½	10½	45	15	37	20	12½	43	45	13
21	Alexander Beard	Dec. 31, 1828	12	14	50	18	37	20	17	75	50	25
29	Stevens & Buckalew	do do	9½	13	60	25	57½	20	20	72	70	25
33	Kaine & Brannan	do 23, do	10		63	31	48	26				
42	Tuttle, Ferrell & Co.	Jan. 21, 1829	11	12	50	30	37	25	18	90	88	20
55	S. & N. Sybert	do 22 do	13	14	40	35	40	30	25	100	75	35
61	Phillips & Plews	Dec. 23, 1828	10	12½	60	40	37½	22	20	100	100	25
62	Daniel Sponenberg	do do	10	15	50	30	40	22	15			18
88	Joseph Paxton	March, 1829	11½	15	50	35	20	25		78	78	25
90	Michael M'Cormick	August do	9					20				
95	James Appleton	June 29 do	9	20	87½	30	25	15		75	75	20
111	Samuel Yorks	April 25 do	12	14	50	40	40	20		87½	94	20
122	Joseph R. Priestley	August do	10½	14	56¼		50	26½				
81	Geo. S. Shelmire	August 5 do	8½	12	75	31	25					

Contracts for excavating Lock pits.

No. of Sections.	Names of contractors.	No. of Lock.						
1	Barnum & Brown	Guard lock						
52	John J. Kelcey	No. 1	14 cents		50 cents	37½ cents	40 cents	25 cents
58	Phillips & Plews	2	18		50		50	38
71	Uzal Hopkins	3	15				25	22
84	John Flood	4	16		50		40	25
86	Robert Reston	5	15		50	37½	45	25
101	John Houston	6	16		75	75	19	25
126	Andrew Byrne	7	15		50	30	25	25

For building the dam at Nanticoke Falls.

Barnum & Brown, contractors; date of contract. April 20, 1829; timber per foot run, squared, 10 cents, round 8 cents; walling per perch, range $ 2 50, common rubble $ 1 50; per cubic yard, filling in with stone 75 cents, puddling or gravelling 75 cents; plank per 1000 feet, board measure, $ 7 00, iron per pound 12½ cents; levelling and preparing foundation, engineers estimate.

For building the guard lock on section No. 1.

Barnum & Brown, contractors; Date of contract, April 20, 1829, price per foot rise $ 150 00; iron per pound, 12½ cents.

For the lift locks.

No. of Lock.	No. of Section.	Names of Contractors.	Dates of contract.	Price per foot lift.	Iron per pound.	
1	52	Nathan Beach		$ 150 00		Paddle gates furnished by the commonwealth and inserted at the estimate of the engineer.
2	58	William M'Kelvy	4th March, 1829	149 75	9 cents	
3	71	do do	do do	149 75	9	
4	84	do do	do do	149 75	9	
5	86	do do	do do	149 75	9	
6	101	do do	do do	149 75	9	
7	126	do do	do do	149 75	9	

AQUEDUCTS.

Name of the stream.	No. of section.	Names of contractors.	Walls per perch.	Trunk per foot lineal.	Iron per pound.	Extra work.
Shickshinny creek	34	Phillips & Plews	$ 1 62½	$ 8 50		Estimate of engineer.
Briar creek	64	John & Jesse Bowman	2 15	6 00	10 cents	
Fishing creek	86	Charles & Hiram Cook	3 00	10 48	10	
Mahoning creek	106	Wm. & Henry Colt	1 50	6 31	10	
Lodge's run	124	John Moore & Co.	2 50	7 50		

Safety gates and waste weir at Hunlock's creek.

Safety gates	11	George Cahoon & Co.	$ 6 00 per foot rise each pair	Wall $ 1 45 per perch
Waste weir			$ 4 00 per foot lineal	

A list of the contracts entered into from Nanticoke falls to Northumberland—Continued.

Contracts for making culverts.

Contractors names.	Date of contract.	No. of sections.	Of what kind of materials.	Price.
Daniel Sponenberg	January 29, 1829	65	1 of stone	$ 1 75 per perch
do do	do do	72	1 of stone	1 50
John Flood	April 27, do	84	1 of wood	110 00 completed
Samuel Crowl	December 18, 1828	94	1 of stone	2 50 per perch
Morrow & Brady	March 13, 1829	103	3 of wood	232 00 completed
John Flood	May 27, do	99	2 of wood	110 00 each completed
Stanton & Arnold		57	2 of wood	
Colt & Donaldson			1 of wood	

Contracts for building bridges.

Contractors names.	No. of Section.	Kind, and number of bridges.	Price of wall per perch.	Price superstructure or of whole bridge.	Date of contract.
Phillips & Plews	34	Wood and stone	$ 1 00	$ 150 00	May 1829
Isaiah Longshore	38	do do	1 50	60 00	April 22 do
Rodman Reynolds	41	do do	1 50		Jan. 21 do
Boardman & Linsley	41			190 00	
Josiah T. Beach	44	2 of do do	1 25	150 00 each	May 18 do
Alexander Jameson	45	1 do do	1 75	65 00	
Hopkins & Trescott	46	2 do do		105 00 each	
Josiah T. Beach			1 37½		May 18 do
Anthony Gifford	51	1 of wood		195 00	Nov. 20 do
Boardman & Linsley	57	1 of wood & stone		950 00 complete	Oct. 15 do
Daniel Sponenberg	65	1 do do	1 62½		Jan. 29 do
John & Jesse Bowman	64	1 wood		233 00 do	Sept. do
do do	65	1 wood		250 00 do	Oct. do
John Knorr	70	1 wood and stone	1 62½		Jan. 29 do
do do	71	1 do do	1 50		do do
Uzal Hopkins	71	1 do do	1 50		Jan. 31 do
Daniel Sponenberg	72	1 do do	1 50		Jan. 20 do
Hopkins & Frees	73	1 do do	1 45		April 28 do
Boone & Unangst	73	1 do do		130 00	May 21 do
Boardman & Linsley	78	1 do do	Estimate	190 00	July 4 do
do do	79	1 of wood		250 00 complete	do do

Bridge contracts continued.

Contractor's names.	No. of Section.	Materials.	Wall per perch.	Superstruct. complete, &c	Date of contract.
Boardman & Linsley	80	Wood and stone	Estimate.	$ 190 00	July 4, 1829
do do	81	do do	do	190 00	do do
Wells & Pursell	82	do do	$ 1 25	95 00	April 27 do
do do	83	do do	1 25	190 00	do do
Boardman & Linsley	83	Wood		250 00 complete	July 4, do
do do	84	do		250 00 do	do do
do do	85	do		250 00 do	do do
do do	86	2 of wood and stone	Estimate.	190 00 each	do do
do do	89	Wood		250 00 complete	do do
do do	91	do		250 00 do	do do
do do	97	do		250 00 do	do do
do do	98	do		250 00 do	do do
do do	103	Wood and stone	Estimate.	190 00	do do
do do	104	do		250 00 completed	do do
do do	105	do		250 00 do	do do
David Petrikin	106	2 of wood and stone	2 00	180 00 each	do do
Boardman & Linsley	107	Wood		250 00	do do
David Petrikin	109	do and stone	2 00	180 00	do do
do do	110	do do	2 00	175 00	do do
Heimbach & Blanchard	99	2 of wood and stone	1 50	125 00	April 27, do
Joseph Nourse	124	Wood and stone	1 25	no contract	April 25, do
do do	125	do do	1 20	no contract	do do
John K. Boyer	106	Wood—timber per foot 12½ cents, plank $2 00 per cubic feet.			

Fence contracts.

Contractor's Names.	No. of sections.	Prices.	Dates of contracts.
N. R. Penrose	51	75 cents per rod	June 26, 1829
William Thomas	64	75 do	October 10 do
John Knorr	70	75 do	May 1 do
Abraham Mench	99 & 100	75 do	May 9 do
Daniel Montgomery	102 & 103	75 do	November 14 do
Henry Conctwright	126 & 127	75 do	August 31 do

these certificates have gone into circulation, and it will require
ch time, in many instances, to collect all the parts necessary to
nplete the whole estimates, by which it could be shown that
y have been paid off, so as to get a credit. Many thousand dol-
; might be paid in lifting certificates, all being fractions of pay-
nts, and none affording a credit further than they may chance
belong to, and make up the whole of the respective estimates
n which they are founded.

would suggest the propriety of asking an act of the legislature,
horizing a deposit of funds at such places as would afford the
atest facilities in the payment of the certificates, with the ap-
ntment of persons to take them up and pay them as they may be
sented. To prevent fraud, the certificate books together with
estimates could be placed in the hands of the person so ap-
nted. This, or some arrangement to facilitate the operation of
eeming the certificates, I am well convinced, will be found ne-
sary.

Respectfully submitted.
J. MITCHELL, *Acting Commissioner.*

No. 5.

*gineers report, and a statement shewing the items and cost of
vork not done on the North Branch Division of the Pennsylva-
nia Canal, from Nanticoke Falls to Northumberland.*

North Branch division Pennsylvania Canal.
Danville, Nov. 25th, 1829.

n. David Scott,
President of the Board of Canal Commissioners.

r:

The subjoined statement is designed to show all the items of
rk to be done on this division, and their cost. It should be
narked however, that although much pains has been taken, by
nparison with completed sections, to get at the true proportion
the different materials, yet it may turn out, during the progress
the work, that our statement is not correct; for we have fre-
ently been deceived in judging from the appearance of the sur-
e before the ground was broken. In many instances where we
pected nothing but an easy alluvial soil, we have found the most
ficult kind of excavation, and not unfrequently rock. From this
cumstance, many of our sections will cost much more than was
first anticipated. On some sections we have found quicksand,
t in only one instance has it materially altered the cost of the
rk. This was on section No. 43, where we came on to an exten-
ve vein, about six feet thick, which compelled us to lay the ca-
l nearer the river, and protect it with a stone wall, to the amount
near 7000 perches. We did not discover this vein, until after

the section had been permanently located, and the ground brok nearly the whole length of it. The subsequent alteration may su ject the contractor to damage, in which case, I presume, the boa will be disposed to make a corresponding allowance.

In making this statement I have endeavoured to anticipate eve source of expense, and I fully believe the result will not material vary it.

The first twenty-one miles of this division presents a series the most formidable difficulties to be found on any canal. T necessity of taking a feeder at Nanticoke, subjected us to mu deep cutting across the flats, most of the remaining part of t distance, the river is hemmed in by steep and rocky mountai These could not be passed without great expense, the excavati was always of the most difficult kind, the embankment and gua walls were heavy, and where the water was deep, which was fr quently the case, the wall foundation itself was a serious item expense. These difficulties however were unavoidable. Had taken a higher level, (although much deep cutting might ha been saved, yet the wall and embankment would have been great increased, also the lockage. But a higher level could not be take for that would have required a higher dam, by which the extensi and rich flats above would have been inundated and destroyed, a the health of the surrounding country jeopardised: these we considerations not to be overlooked.

To enable the board to judge more correctly of the formidab character of this portion of canal, I have given below, some of t leading items of expense, to wit: Two millions five hundred a twenty-eight thousand cubic yards of excavation; five hundr and forty thousand cubic yards of embankment; one hundred a forty thousand cubic yards of rock; one hundred and forty o thousand perches of wall; thirty five thousand perch of wall fou dation, and three hundred and forty three thousand feet of timbe When these are added to the various other items which have, a will occur, the whole cost will amount to $501,558, equal to nea twenty-four thousand dollars per mile, leaving the remaining p tion to cost a little more than ten thousand dollars per mile.

The backward state of the work at the dam, has been alluded in the report of Mr. Mitchell. We had at first the utmost con dence in the contractors, not from a personal knowledge of the but from the high characters which they sustained for a job of th description; upon this we rested, at least until it was too late a re-letting to have had it completed this season. For this I sha probably be censured, but when it is considered that the greate part of the timber was ready on the spot, and that it was entirel within their power to complete the work which they had agreed do, and which, from their high character, I was induced to belie they would do, I think that the weight of that censure will in great measure be removed.

Owing to the late unsuccessful attempts to pass the chute Shamoken; an opinion is entertained by some that one cannot

sylvania canal.

	Square yard.	Timber.		
all ation.	Inside slope wall.	Square.	Round.	
	100			954 50
				2506
200				9712
				525
	2100			1078 50
	4500			3658 25
	5100			2408
	2200			2091
	1900			3186
	1800			2362 50
				2953
	600			1898 50
				2657
	2600			1180
	3600			3023
	400			687 50
				167
				4500
				600
				$ 95,297 79

the section had been permanently located, and the ground broke nearly the whole length of it. The subsequent alteration may subject the contractor to damage, in which case, I presume, the boar will be disposed to make a corresponding allowance.

In making this statement I have endeavoured to anticipate ever source of expense, and I fully believe the result will not materiall vary it.

The first twenty-one miles of this division presents a series the most formidable difficulties to be found on any canal. Th necessity of taking a feeder at Nanticoke, subjected us to muc deep cutting across the flats, most of the remaining part of th distance, the river is hemmed in by steep and rocky mountain These could not be passed without great expense, the excavatio was always of the most difficult kind, the embankment and guar walls were heavy, and where the water was deep, which was fr quently the case, the wall foundation itself was a serious item expense. These difficulties however were unavoidable. Had w taken a higher level, although much deep cutting might ha been saved, yet the wall and embankment would have been greatl increased, also the lockage. But a higher level could not be take for that would have required a higher dam, by which the extensi and rich flats above would have been inundated and destroyed, an the health of the surrounding country jeopardised: these we considerations not to be overlooked.

To enable the board to judge more correctly of the formidab character of this portion of canal, I have given below, some of th leading items of expense, to wit: Two millions five hundred an twenty-eight thousand cubic yards of excavation; five hundre and forty thousand cubic yards of embankment; one hundred an forty thousand cubic yards of rock; one hundred and forty on thousand perches of wall; thirty five thousand perch of wall fou dation, and three hundred and forty three thousand feet of timbe When these are added to the various other items which have, an will occur, the whole cost will amount to $501,558, equal to nearl twenty-four thousand dollars per mile, leaving the remaining po tion to cost a little more than ten thousand dollars per mile.

The backward state of the work at the dam, has been alluded t in the report of Mr. Mitchell. We had at first the utmost conf dence in the contractors, not from a personal knowledge of them but from the high characters which they sustained for a job of thi description; upon this we rested, at least until it was too late by a re-letting to have had it completed this season. For this I shall probably be censured, but when it is considered that the greatest part of the timber was ready on the spot, and that it was entirely within their power to complete the work which they had agreed to do, and which, from their high character, I was induced to believe they would do, I think that the weight of that censure will in a great measure be removed.

Owing to the late unsuccessful attempts to pass the chute at Shamoken; an opinion is entertained by some that one cannot be

No. 5.

A statement shewing the items and cost of work not done on the North branch division, Pennsylvania canal.

No. of Section.	Contractor's names.	Grubbing and clear	Cubic yards.							Perches.			Square yard.	Timber.		
			Excavation.	Embankment.	Solid rock.	Slate rock.	Detached rock.	Hard-pan.	Puddle.	Vertical wall.	Outside slope wall.	Wall foundation.	Inside slope wall.	Square.	Round.	
1	Barnum and Brown	$50 00	6000	4000			100	106		3860						$ 6265
2	Barse and Midler		7000	3200	200		1000	200		1000		300				2327
3	P. Tammany and Co.			2000	300		3500			2300		650				3347 50
4	Cady and Co.			2000	650		400	500		3000		1000	2000			3517 50
6	H. J. Fritcher		1000					200					800			130
8	Anthony Groves and Co.												860			280
9	do do												1034			361 90
10	W. W. Gitt and Co.		600	550			250	1500					350			713 25
11	Tuttle and Ferrell		1100				150	2000					800			932
12	M'Reynolds and Co.		1250					1000			150		1800			758 25
13	George Chahoon and Co.		1500													187 50
14	do do												848			424
15	Tammany and Co.	10		5000			3500				1500	150				3[illegible]35
16	A. Y. Moore and Co.		1000	15,000	1000		2500	500			1500					4905
17	Wm. Pratt		1000		400		550	1000					300			854
18	John R. Dean							2500					100			417
19	Wm Pratt			250			100	250								210
20	Austin Day			1000	200		300	550		200		50				835
25	Hiram Cook and Co.		100				100	500					400			243
26	Frederick Pratt		3000							1940						2300
27	Forsyth and Co.		3000					500		800						1180
30	Koones and Co.		6000	6500	500		1200	500	1500	400	2300	250				4470
34	S. Vaughn		1000				500	1000								560
36	Samuel Everitt			2000	300		200		2400	500		600				910
37	do do		500	1600	200		100	200		1000	400	400				1077
38	Thomas Moore and Co.		1500	300	100		100			500						465
39	do do			9000							1350	100				2156
43	Beach and Co.			12,000							1700	50				3177 50
44	do do		1500	1000				260								540
47	Jesse Hicks			500		1200	100	100								580
51	Robert Reston			2500												225
53	Boyer and Co.			500	200			100			100		1500			985 50
55	S. Sybert		2000	3000			400	1200			3400					3750
59	Phillips and Plues			2600										1600	2200	630
60	do do			8300			400							12,000	12,200	2857 50
66	Hiram Cook and Co.				100								200			66
71	Uzal Hopkins			800												60
73	J. Custenbader			2000						50						262 50
74	Saml. and Thomas Wabb		3550	4300			300	150					2100			1457 20
75	do do		27,600	2200			1000	1500					2500			4442
76	do do		6200	900			200	1000					600			1136
77	L. G. Bancroft, assignee of Swabey		1500	13,100			50						300			1884
78	do do do do		3400	7250			500	500					1800			2571 25
79	M. and L. Fitzsimons		100	1260			50						180			219 90
81	George Shellmire		750	10 392				200					150			1387 79
82	Potter and M'Cormick		350	274									50			72 50
83	Russel and Jackson		600	1000									120			288
86	Robert Reston		300	1950	200	1700							800			885 75
87	Joseph and H. Steller	100	1400	2050				300								479 50
88	Joseph Paxton			1300					2500							1070
89	George H. Willets		200	2400	150				7000	220	150					3168 60
90	Michael M'Cormick	40	6620	100	8			800								832 80
93	Horton and Millard		3100	800			100	1000					1200			838 50
94	James Muller			2500	200						500		150	200		1027
95	James Appleton		5500	28,900		5	500		4000	5200		500				12,150
96	Peacock and Everitt			3100	600				2400		2500	500				3518 25
Road	do do			200	1000					1200						1679 50
97	David Petriken		1200	17,200												2578
Road	do do		2000	500												210
98	M'Reynolds and Miles		680	2800												350
101	John Houston			6800		800		800	700		150					1859
104	Joseph Maus		800					400								152
106	Donaldson & Montgomery		750	1000					200							178 50
107	do do		5100	1140				600	200	40						714
108	Samuel Hunter		800	6900									100			954 50
109	John M'Govern		4500	4600			600		1200	1680						2506
111	Samuel Yorks		1400	28,000	500		400				5600	200				9712
112	Morrow and Brady		320	4000												525
113	John Flood		3700	1100			200	1300					2100			1078 50
114	William A. Martin		16,800	900			1400	3000					4500			3658 25
115	Petriken and Boyer		7700	1000			900	600					5100			2408
116	Adam Young and Co.		14,100	4200			550	1350					2300			2091
117	John D. Petriken		7600	3800	200	2800	200	1100					1900			3186
118	Farrell and Kelley		6900	7700	400	1040	200	300					1300			2362 50
119	Alexander M'Ewen		3000	15,100		1500	120									2953
120	Bollinger and Wassan	50	7000	3200		1800	200						600			1898 50
122	Joseph R. Priestly	200	9800	1200			400	4000								2657
123	Crolly and M'Laughlin	72	800	1800			300	1600								1180
124	Noorse and Porsell		5400	9200	400	100	650	1000					2600			3023
125	do do		2500	2000	200	300							3600			687 50
126	J. and W. Wilson and Co		300	600	400								400			167
128	Lee and Fagan															4500
Bridge embk't in Danville	Colt and Donaldson															600
																$ 95,297 79

ta

U

L

atement s| ost of work not done on the lower division, o section No. 128, inclusive.

86 101 121—no contractors 6, 7,		2000

n Pennsylvania canal,

What	Bridges.	Culverts.	Fences	Total.
pper divisi sec. No. 73,	5941 50	150	6625	93,193 40
.ower divis sec. No. 12	13,250	2650	6300	132,656 79
Whole	19.191 50	2800	12,925	225,855 19

Messrs. Barnum

A statement shewing the items and cost of work not done on the upper division, from section No. 1 to section No. 73, inclusive.

Sec.	Locks.	Names of Contractors.	Items.	Cost of items.	Total cost.
1		Barnum and Brown	Nanticoke dam.		$14,936
1		same	Guard lock		900
			Pit		1075
			Puddle & embank.		511
11		George Chahoon & Co	Waste wier and safety gate		1000
52	1	Besch and Everitt			2000
58	2	William M'Kelvy			165
71	3	do			700
					$21,087

LOCK HOUSES.

Sec.	Locks.	Names of Contractors.	Items.	Cost of items.	Total cost.
1		none	Guard lock		500
52		none	Lift lock		500
58		none	do		500
71		none	do		500
					2000

CULVERTS.

Sec.	Locks.	Names of Contractors.	Items.	Cost of items.	Total cost.
45		none	wood		50
51		none	wood		100
					150
		Fencing			6625

AQUEDUCTS.

Sec.	Names of Contractors.	Items.	Total cost.
54	Phillips and Plues	Shickshinny creek	900

BRIDGES.

No. of section.	Names of contractors.	No.	Description.	Dolls. Cts.
44	Nathan Beach	2	farm	450
45	Alexander Jameson	1	same	424
46	Josiah T. Beach	2	same	300
47	Fritcher and Mack	1	road	387 50
49	none	1	farm	230
51	Anthony Gifford	1	same	230
54		1	same	230
57	Boardman and Linsley	1	road	500
61	Phillips and Plues	1	farm	250
62		1	same	250
63	Daniel Sponenberg	2	same	500
65	John & Jesse Bowman	1	same	250
65	Daniel Sponenberg	1	farm	180
66		1	same	230
67		1	same	230
68	do do	1	road	180
69		1	farm	250
71		2	farm	430
72		1	same	180
73		1	same	130
54		1	same	150
				5941 50

A statement shewing the items and cost of work not done on the lower division, from section No. 73 to section No. 128, inclusive.

Sec.	No. of lock.	Names of contractors.	Items.	Cost of items.	Total cost.
84	4	John Flood	emb. & puddlig	$147	
84	4	William M'Kelvy	lock	280	427
86	5	Robert Heston	excavation	60	
86	5	William M'Kelvy	lock	1465	
86	5	none	embank. & pud.	550	1875
101	6	none	do	400	
		William M'Kelvy	lock	1450	1850
126	7	none	embank & puddle.	450	
		William M'Kelvy	lock	1137	1587
					5739

CULVERTS.

Sec.	Names of contractors.	Items.	Cost of items.	Total cost.
107	Colt and Donaldson	wood		300
106	David Petrikin	stone		700
86	C. & H. Cook	do		750
74 & 77	none	do		750
117	James Lemon	wood		150
				2650
	Fencing			6300

AQUEDUCTS.

No. of sect.	Names of contractors.	For what creek.		Dolls. Cts.
86	C. and H. Cook	Fishing creek		4950
106	Wm. & Henry Colt	Mahoning creek		1006
124	J Moore, Walls & Co.	Lodge's run		1464
				7420

BRIDGES.

No. of sect.	Names of contractors.	No	Description.	Dolls. Cents
78, 80, 81, 83, 86 86 89 103	Boardman & Linsley	8	road	5400
79 84 85 91 97 98 104 105 107	same	9	farm	1750
106 106 109	David Petrikin	3	road	1060
110	same	1	farm	250
82 83	Wells and Purcell	2	road	800
99 99	Heimbach & Blanchard	2	farm	250
124 125	Joseph Nourse	2	do	500
106	John K. Boyer	1	do	40
117	James Lemon	1	do	250
74 75 76 77 91 92 112 113 114 115 116 118 119 120 121 122 124 127	none	18	do	4500
127	none	1	road	450
				$13,250

Lock Houses—on sections No. 84 86 101 121—no contractors No. of locks 4, 5, 6, 7, 2000

Recapitulation of items and cost of work not done on the north branch division Pennsylvania canal,

What division.	Dam.	Canal & road.	Locks.	Lockhouse-	Aqueducts.	Waste wier	Bridges.	Culverts.	Fences	Total.
Upper division from section No. 1 to sec. No. 73, both inclusive 71½ miles.	14,936	56,494 90	5151	2000	900	1000	5941 50	150	6625	93,193 40
Lower division from sec. No. 74 to sec. No. 128, both inclusive 28 miles		95,277 79	5759	2000	7420		13,250	2650	6300	132,656 79
Whole north branch division	14,936	151,772 69	10,890	4000	8320	1000	19,191 50	2800	12,925	225,855 19

structed, as to answer the purpose of descending navigation.
g examined the chutes on the Lehigh, and reflected con-
bly on the subject, I am satisfied that this opinion is not cor-
Where the chute is a continued incline plane, an ark in
nding acquires a velocity, the tendency of which is to carry
ond that plane in the same direction, now if the plane makes
gle with the surface of the river below, the danger to be ap-
nded is, that the ark will plunge and sink, or in case of shal-
vater, stave against the bottom. The bottom of chute there-
should be slightly curving, and extend so far, that its lower
vould be nearly, or quite, parallel with the surface of the
As an additional security I would propose to cut down
ams, to within, say three feet of bottom, and supply each with
draulic lock, such as are used by the Mauch Chunk company
e Lehigh. These during a great portion of the season, might
ft open, in fact they would only require to be shut when the
would be too low for navigation.

I remain most respectfully,
Your obedient servant,
CHARLES T. WHIPPO

No. 6.

A.

y of a Letter to Barnum & Brown, Contractors for the Nanticoke Dam.

Nanticoke, August, 1829.

NTLEMEN:—
Under a late resolution of the board of canal commis-
ners, (a copy of which has been furnished you.) It has become
duty to attend particularly to the accomplishment of the object
rein specified. For this purpose it becomes necessary that I
ll be fully informed in relation to the present situation of the
rk; the materials procured and on hand; the number of
n employed at the dam, and on the section, as well as your
n views and opinions, as to your abilities to carry into effect,
e object of the resolution. You are therefore required without
lay, to make to me in writing, a statement embracing the above
ormation, as well of the section as of the dam. I have also to
quest that you embrace in your statement, the increased means
you used to forward the work, and the actual increase made to
ur force, since being furnished with a copy of that resolution.

Respectfully your
Obedient servant,
J. MITCHELL, A. C.

Messrs. Barnum & Brown.

B.

Barnum & Brown, Contractors for the Nanticoke Dam.

Nanticoke, August 13th, 182

JOHN MITCHELL, ESQ.

SIR :—

Your letter dated August, 1829, is now before us, requirin us to make to you in writing, a statement embracing full information respecting the work done, materials on hand, and force now employed on Nanticoke dam, guard lock and section No. 1.—In compliance with which we have to state to you, that there i now on section No. 1, 61 labourers, 11 horse teams, and 12 o teams. Arrangements are now making to increase the force o this section, so that we feel safe in saying to you that the sectio will be completed by the first day of December next. The guar lock is under the direction of Mr. John P. Babb, a man of energ and experience in his profession, and who says the work will b finished within the space of six weeks. The timber now on hand fo dam, together with that for guard lock, is about 75,000 feet.—The plank to cover the dam, is in our opinion by no means suitable for that purpose. The stone for the abutments are all quarred, and are now prepairing for being, and will be laid as soon as the foundation is marked out. The abutment pitts have been excavated some time since. We have at least 6000 yards of stone in and adjoining the water, for filling in, and many thousand yards more quarried convenient for hauling. We have commenced framing the dam, but at present with a small number of workmen.—Our reasons for this, is, that our foreman may become acquainted with our views and method of laying out the work, we shall then employ an additional force of 25 or 30 carpenters, the greater number of whom have been engaged, and are now ready to commence —with this force we presume we shall be able to have the whole in a state of readiness in the space of three weeks. We are unable to state what time will be required to fill and sink the cribs, level foundation, &c. as we are ignorant as to the quantity of stone necessary, as also of the precise depth of water where they are to be placed. We have now employed on the dam between 60 and 70 labourers, but can and will employ such force as is thought necessary to place the whole in a state of readiness for completion this fall—but considering the great amount of work yet to be done on the lock and section, before it would be secure against injury from freshets, as also from the water flowing in from the dam, and from our knowledge of facts in relation to the force of the river at this place, together with the difficulty of making such a work as this permanent upon a gravel foundation, (and such it is for the greater part,) we cannot but express to you a doubt as to the propriety of attempting to place timber in the river at this advanced state of the season. We would therefore respectfully suggest to you as the safer and better plan, to have all the work completed as is possible, which will not be exposed to such imminent r. The cribs and foundation for the dam can be laid at an period next season—which as the work progresses will pro furnish a sufficient supply of water for the canal, so that ions may be commenced thereon nearly as soon as if the dam laced in the river this fall, and the whole can then be com- with perfect safety.

We are sir, most respectfully,
Your obedient servants,
BARNUM & BROWN.

C.

of a letter handed Barnum & Brown, contractors for the Nanticoke Dam, and section one, dated 13th August, 1829.

e following statement, &c. was handed to Barnum & Brown, actors for the Nanticoke dam and section 1, on the North ch canal, on the 13th August, 1829, with a view of exciting to exertion in the accomplishment of their work at a certain

	Perches.
e wall on section 1, there are in all	9,240
laid up	2,340
	6,900
ains to be laid n the 13th of August to the 1st Dec. I suppose 80 orking days, throwing off 13 for bad weather; then it ill require 18 masons, at 5 perch each per day, for 80 ys to lay off wall	7,200
	300
Over	

ay your team of two horses hauls 10 loads of stone per day, (a h of stone weighing two tons) will make 5 perch per day to a n, and will require 18 two horse teams, with men sufficient to them a going.

	Cubic yards
excavation in the section, exclusive of the addition y the lock pit, will be about	30,000
may average about 8 yards per day to a hand, then 50 ands for 80 days, makes	32,000
	2,000
Over	

	Perches
abutment on the canal side of the river contains	480

his you can accomplish in 80 days with four masons, well nded.

Cubic yards exca

The lock pit contains, exclusive of the canal, and including the puddle ditches 1,0

This work is nearly finished.

The filling in and puddling necessary to complete that lock, will be 2,7

The *frost* makes it necessary that this work shall be complet by the 10th of October next, say 49 working days, the puddle a filling in will be to haul about 80 perches, and will require at lea 20 men and 8 carts 49 days to complete the work.

I suppose the wood work of your lock to be one third done, a not more; it will then require 6 carpenters 49 days to comple the work.

It is absolutely necessary that this part of the work shall be co pleted this season. You are therefore required to immediate employ and put on the force which is herein calculated upon; a if at any subsequent time you should find that force not sufficie you are required to increase it to that extent which will insure t completion of the work on or before the 1st of Dec. next.

The dam and southern abutment will be the subject of anoth letter, dated perhaps to-morrow.

J. MITCHELL, A. C.

D.

Copy of a letter sent Barnum & Brown, 14*th August*, 1829.

Chahoon's, near Nanticoke, 14*th Aug.* 182

Messrs. Barnum & Brown—

GENTLEMEN:

In my letter of yesterday, I proposed next to address yo on the subject of the dam and southern abutment.

It will require to fill the dam, 10,000 cubic yards of stone. Yo have now prepared on the north side of the river, 4,596 cubic yard leaves yet wanting 5,404 yards to fill the cribs, and 5000 of grav to complete the upper covering. It will require of timber abou seventy-five thousand feet, and thirty-three thousand feet of plan to complete the covering.

You are mistaken in your opinion that the plank procured an on hand for this purpose, is not suitable. It will answer the pur pose, but I presume will lack in quantity. Having taken muc pains to ascertain the precise situation of your work, I am no enabled to judge in some degree of your ability to complete you contracts this season, and can only say, that I am sorry to find th result of this investigation so unfavourable to the object in view Your work on the section, as well as the dam, at this advance state of the season, is so far back, that I can but express grea

rs for the completion of any part of it in time to insure it against
e floods in the river. That of the dam is, in my opinion, totally
t of the question. In your note to me of yesterday, you men-
n that you can and will employ such force as will be thought
cessary to complete the whole of the work this fall. I am in-
ined, however, to believe, that since receiving my note of yester-
y, you have found reason to doubt your ability to effect so much,
d that the work there required to be finished, will afford employ
r a much larger force than you anticipated. As respects the dam,
is proper the whole framing be completed before the next spring,
d the abutment on the south side, if you consider you can put
in a state of security. It is believed that you can with safety
nk your cribs and level the foundation for the dam, taking care
use that portion of stone which will be necessary to secure
em. I take this opportunity of again expressing my anxiety for
e completion of the work required in my note of yesterday, the
ccomplishment of which, I shall look for with that degree of cer-
ainty which the importance of the object would seem to require.

Respectfully, your obedient servant,

J. MITCHELL, A. C.

No. 1.

FRENCH CREEK FEEDER.

Report of William Dickson, Superintendent French Creek Feeder. November 18, 1829.

To the Board of Canal Commissioners Pennsylvania Canal.

GENTLEMEN,—On the 5th of June last, I received from the board my appointment as superintendent of the French creek feeder, and immediately thereafter repaired to Meadville and took charge of that portion of the public works.

On an examination of the whole line, I became convinced that in order to preserve that part of the feeder finished during the last season, from decay, it would be indispensable by repairs and alterations to render it ready for the admission of water at as early a date as possible; and to this end proposals were received until the 15th of July, for the construction of wharves and walls on the upper side of the canal where there had been slips from the hill; for the excavation of the alluvious earth deposited in the canal during the winter; for the construction of 8 waste wiers; and in general for all necessary works which had not as yet made part of any contract.

By reference to the report of the engineer of last year, it will be seen that all these repairs were contemplated, and estimated on the east side of the creek to cost	$22,327 77
The actual expense has been	17,084 57

The statements accompanying this, and marked A, B, C, sho the sums paid for the several kinds of work done since the date o the last annual report of the superintendent, and contain, on th subjects to which they refer, all the information required by th resolution of October last. The expense of the engineer department having consisted for the last season of a principal, an asssistant, and one rodman only, is not the subject of any particular statement but makes a part of the general contingent account.—Collectively the several items of expenditure for the year ending on the 15th of November, are as follows:

	Paid.	*Due.*
Amount for sections under original contracts	$77,470 11	$5,711 63
Amount for aqueducts, waste wiers, culverts, bridges and fencing	11,764 90	10,048 54
Amount for repairs; the contracts having been made generally 15th July	8,859 15	8,628 62
Amount for contingent expense	4,256 12	1,872 00
Amount for damages	349 20	380
	$102,699 48	$26,640 79

The part of the feeder authorized to be constructed, making a distance of twenty miles, is at present completed, excepting the French creek aqueduct, four sections on the west side, and one contract for repairs on the east side of French creek; the sections on both sides of the creek it is confidently expected, will be finished about the first of January.

On the 17th inst. the whole line of feeder east of the creek, a distance of eight miles, was filled with water to the depth of three feet, and the banks except in one instance, found tight and solid. The water at present for seven miles in length, has an average depth of 2½ feet, which will be increased when the safe places are secured. On the west side of the creek lengths of 3 and 4 miles are now filled with water a foot in depth, and the waste gates are kept open only for the accommodation of the contractors whose jobs are still incomplete.

The western abutment of the aqueduct across French creek, has been carried up thirteen feet above the platform of the foundation, and stone enough delivered to finish that abutment entirely. The timber for the superstructure has also been principally delivered. It cannot, however, be denied that this work is as yet in a very backward state; nor from present appearances would we be authorized to predict its completion during the next summer. The season from July till September was unhealthy, and the 18th of the latter month had arrived before the masonry of the abutment was commenced. Previous to this the principal contractor, Mr. Cullum, died of fever, induced by exposure in prosecuting his work. It was at that time too late in the season to make any arrangement which would accelerate the progress of the job, and indeed k of funds for the payment of contractors rendered it almost reasonable to enforce the completion of the contracts, thereby gmenting the expenditures of the contractors, as it would seem, exact proportion to the inadequacy of the provision made for eir payment. In the present state of this work the contract with e Cullums having really expired by its own limitation, it might advisable (the work not having been retarded by any neglect of eirs) to enter into a new contract with them, or others, stipulat- g that the work should be finished by the first of November, 30. The advice of the board in relation to this work would be sirable at as early a date as possible. The aqueduct across Wat- n's run was completed in September, and is a substantial struc- re.

The actual expense of the whole line of feeder will be found to ceed the estimate about one fifth The increased expense has een owing almost entirely to the necessity for building wharves id retaining walls on the upper side of the feeder. These are w completed, and except in two instances answer the purpose r which they were projected. In these cases, it is believed the ily security against slips from the upper bank, (to prevent which iese works were planned) will be found in piling the face for its hole length.

At the February, April and August terms of the court of quarter essions, applications were made by sundry persons, principally esident in the village of Meadville, for the appointment of view- s to assess and award the damages, deemed to have been sus- ined by them in consequence of the feeder passing through their roperty. The court in each case appointed viewers. A state- ient of the names of the petitioners, the names of the viewers, id the amount awarded in each case accompanies this report, and marked (D). The awards of the first viewers, were on motion counsel for the commonwealth, set aside at the August term of ie court, on the ground of informality in the proceeding; the ourt neither having directed in the order, nor the viewers set rth in their report, that the advantages to be derived from the anal had been at all considered. Indeed from the sums adjudged y the first viewers, it was pretty evident that the principle upon hich the assessment had been made, was, that the petitioner in ich case was entitled to the full value of that part of his property ken by the public works; the advantages to be derived from ich public improvements at any period, be it distant, or be it near, eing considered too unreal and unsubstantial to enter into the ac- ount at all. At the November term of the court, a motion was iade by counsel for the petitioners, whose cases had been consi- ered at the preceding term, to set aside several of the awards here no damage had been allowed, on the ground that the viewers ho reported at the August term, had given to the phrase in the ct of assembly, "*advantages of said canal to the petitioner*" (page 97, session 1826—7) too extended a signification: inasmuch as uch advantages, according to the plea of the petitioners, should be estimated only on the particular lot or tract which might happen to be touched upon or cut by the canal, without reference to any other adjacent property, of which the petitioner might also be the proprietor. Counsel on this point will be heard at the next term of the court. Experience here, as in almost every other similar situation, has proven, that in locating a canal through a village, the safest and cheapest method will be, to purchase the property required for it, previous to the commencement of the work. In the present instance there can be but little doubt, that if the whole of the several properties, for parts of which damages are now asked, had been purchased by the commonwealth in 1827, there would have been a saving even in expense; at the same time that by retaining the remainder of each property, the state would have secured to itself the advantages arising from an immediate proximity to the canal. From the above statement it will be seen that no land damages have as yet been paid on any part of the feeder.

The statements herewith presented, exhibit the amount now due to contractors. In addition to this, about $45,000 will be required to liquidate all claims against this section when it shall have been completed, the French creek aqueduct included.

All of which is respectfully submitted.

WILLIAM DICKSON, *Superintendent.*

No. 3.

B.

Statement of work done and amount paid, and due for Aqueducts, &c. on the line of the French Creek Feeder, to Nov. 15, 1829.

Statement showing the amount now due, and the amount paid for Aqueducts, Waste Wiers, Culverts, Bridges and Fencing from Nov. 15, 1828, to Nov. 15, 1829.

	Amt. paid.	*Amt. due.*
Aquaducts—French Creek Aqueduct A. & O. Cullum,	$3184 00	$1800 00
Watson's-run aqueduct, James Stewart,	2717 50	1605 16
Culverts--On Section 3 Alexander Shaw,	321 00	80 30
Do do 4 Albert E. Bully,		96 65
Do do 16 M'Clasky & Barr,		134 07
Do do 19 M'Claskey & Barr,		82 96
Do do 20 John Petre,		152 07
Do do 26 Henry Hurst,		132 00
Do do 66 James Stewart,		360 00
Well Fall-Do do 28 Albert E. Bull,		1300 40
	$6222 50	$5741 24

44

Sh

=

estimated only on the particular lot or tract which might happen to be touched upon or cut by the canal, without reference to any other adjacent property, of which the petitioner might also be the proprietor. Counsel on this point will be heard at the next term of the court. Experience here, as in almost every other similar situation, has proven, that in locating a canal through a village, the safest and cheapest method will be, to purchase the property required for it, previous to the commencement of the work. In the present instance there can be but little doubt, that if the whole of the several properties, for parts of which damages are now asked, had been purchased by the commonwealth in 1827, there would have been a saving even in expense; at the same time that by retaining the remainder of each property, the state would have secured to itself the advantages arising from an immediate proximity to the canal. From the above statement it will be seen that no land damages have as yet been paid on any part of the feeder.

The statements herewith presented, exhibit the amount now due to contractors. In addition to this, about $45,000 will be required to liquidate all claims against this section when it shall have been completed, the French creek aqueduct included.

All of which is respectfully submitted.

WILLIAM DICKSON, *Superintendent.*

No. 3.

B.

Statement of work done and amount paid, and due for Aqueducts, &c. on the line of the French Creek Feeder, to Nov. 15, 1829.

Statement showing the amount now due, and the amount paid for Aqueducts, Waste Wiers, Culverts, Bridges and Fencing from Nov. 15, 1828, to Nov. 15, 1829.

	Amt. paid.	*Amt. due.*
Aquaducts—French Creek Aqueduct A. & O. Cullum,	$3184 00	$1800 00
Watson's-run aqueduct, James Stewart,	2717 50	1605 16
Culverts--On Section 3 Alexander Shaw,	321 00	80 30
Do do 4 Albert E. Bully,		96 65
Do do 16 M'Clasky & Barr,		134 07
Do do 19 M'Claskey & Barr,		82 96
Do do 20 John Petre,		152 07
Do do 26 Henry Hurst,		132 00
Do do 66 James Stewart,		360 00
Well Fall-Do do 28 Albert E. Bull,		1300 40
	$6222 50	$5744 24

STATEMENT A.

Showing the work done under the original contracts on the several sections of the French creek Feeder, since the 15th of November 1828, the amount paid thereon since that date, and the amount now due.

No. of section.	Contractors names.	Excavation.			Embankment.		Slope wall.	Grubbing.	Amount paid.	Amt. due.
		Earth.	Rock.	Hard pan	Canal	Bridge				
2	Henry Colt	972	389		5385		459		$2178 20	
5	Alexander Shaw	4637	115	2155	4068	483			1617 05	
4	Albert E. Bull	1561	58	3084	8093				2628 64	
15	David Compton		108	1228	473				694 21	
16	M'Claskey and Barr	5679	20	3384	5017				1525 50	109 56
18	William Kerr						149		772 60	
19	M'Claskey and Barr	1443	228	4355	2825				2090 05	
20	John Radle	882			6469	3682			1638 58	
25	William Latta			962	891	2118			640 60	
26	George & Henry Hurst								833 28	175 40
28	Albert E. Bull									108 34
30	Thomas King		138	720	358				663 44	
31	William Latta		2211	430	814				1316 01	
32	Thomas King		1091		952				2614 28	
33	Robert Mead	5696	417				245		2414 99	
39	Magaw & Avery	38540	250		39250			$250	7756 64	12 00
40	Gehr and Norton	14418	40		4176			250	1131 08	
41	Mark Baldwin	12988	25		2911			200	1655 19	
42	William Crawford	13086	40		2168			165	810 00	656 36
43	Beatty and Custard	11690	80		1380			50	1785 94	114 36
44	James Herrington jr.	12280	250		3220			550	1535 94	280 21
45	Holmes and Magaw	8180	320		1360			80	1021 86	202 09
46	Samuel Glenn	12619	40		4020			64	1798 14	
47	Freeman and Trotter	6020	250					75	826 00	211 68
48	Powers and M'Farland	18366	150		3486			100	2909 21	
49	Freeman and Trotter	10658	10		4858			300	1925 96	
50	John Gibson	7706	57		2538			280	1535 94	
51	James Dickson	5947	3		1100	500		150	826 00	
52	Sens and Doty	7820	40		4901			200	1653 76	
53	William M'Fadden	9450	20		552	750		95	1191 00	288 05
54	Magaw and Moore	7071			900	980		575	1009 11	508 61
55	James Brawley	6871	10		457			300	1065 22	
56	Smith and Robinson	7430			1850			500	971 04	505 21
57	Brawley and Neeson	8977			1406	810		250	1062 00	462 42
58	James Patterson and Co	7160			570	634		80	851 50	
59	Magaw and Moore	5637			422	1000		400	1342 64	
60	Beals and Bainbridge	7850			1063	715		550	1502 64	
61	Hurst, Hill and Hurst	9070			500	780		200	1418 60	
62	John Tobin	8424			82			400	1715 10	
63	James M. Dickson	8979			1079	1150		625	1857 56	
64	Randolph and Odell	11514	50		553			475	1786 84	
65	Joseph Turner	9790			170	1040		350	1743 05	
66	Stewart and Cadwell	8538			20693	300		150	3704 21	1000 00
67	Nathan Hempstead	5860			7290			125	1316 46	
68	Henry F. Tammany	7546			240			650	1579 52	
69	Cummings and Bull	5512			1457			140	1075 11	
70	Milton Ford	6991			561			150	1024 09	
71	Hussmer Kellogg	9758			400	253		160	1599 70	
72	Cummings and Bull	7095			558			120	1244 09	
73	Edward F. Randolph	8176			576			260	736 00	410 72
74	Randolph and Randolph	9712			465			150	1020 31	312 76
75	Root and Cheny	10611			557			200	1685 15	
76	Randolph and Randolph	8560			490			550	1103 40	323 50
77	John V. Singer	7873			1406			675	1825 60	59 36
									$84,154 99	$5711 63
	Paid prior to 15th November 1828,								6664 88	
									$77,470 11	

Waste Wiers—	On Sec. 15 Daniel Bemus,		100 00
	Do do 31, 45, 47, 53, 71 & 77 M'Farland & Town,	630 50	881 55
Bridges——	Do do 3 Noah Town,	98 00	
	Do do 4 Noah Town,	49 00	
	Do do 13 Artemas Smith,	10 00	
	Do do 25 William Latta,		17 75
	Do do 26 Henry Hurst,	266 00	
	Do do 27 Samuel Torbett,	200 00	440 00
	Do do 30 Noah Town,	48 00	
	Do do 35 George Davis,	140 00	
	Do do 43, 48 & 66 Noah Town,	538 90	200 00
	Do do 41, 45, 47, 51, 53, 54, 57, 58, 60, 61, 63, 67 & 71 Walker & M'Claskey,	936 00	310 00
	Do do 44 Beatty & Shoemaker,	35 00	55 00
Fencing——	On East side of Creek, Foster & Wightman,	1767 00	
	Do West do do Patterson & Mallery,	391 00	1100 00
	Do do do do Foster & Wightman,	433 00	1200 00
		$11,764 90	$10,048 54

No. 4.

C.

Statement of amounts paid or due on special contracts and contracts for repairs on the French Creek Feeder, to Nov. 15, 1829.

Statement showing the amounts paid and now due for repairs, and on the other special contracts on the French Creek Feeder.

			Paid.	*Now due.*
Repairs on	Section 1 & 2	John Tracy & Co.	$2147 00	$2200 00
	Section 2 & 3	Turner & Butler,	200 00	254 22
	Section 4	Albert E. Bull,	136 80	
	Section 5	James Fleming,	205 00	262 00
	Sec. 7, 8 & 9	Finley & Bull,	700 60	
	Sec. 11, 12 & 13	Simon P. Baley,	275 00	250 00
	Section 17	Hosmer Kellogg,	496 00	355 60
	Section 18	Bull, Wightman & Harroon,		1357 87

Repairs on Section 19	Patterson & Mallery,	805 30	
Section 20	Bull, Wightman & Harroon,		780 10
Section 21	James M. Dickson,	50 00	150 00
Sec. 25, 26, 27 & 28	Baldwin & M'Cord,	625 00	297 20
Section 29	Shattuck & Ford,	170 00	143 60
Section 30 & 31	Albert E. Bull,		350 00
Sec. 32 & 33	M'Farland & Selkregg,	357 00	459 08
Sec. 34 & 35	Baldwin & M'Cord,	738 00	839 20
Section 64	Nathan F. Randolph,	417 00	339 75
Section 63	James M. Dickson,	246 75	
Section 62	James M. Dickson,	45 00	10 00
Samuel Powers reforming turnpike on Sec. 48,			75 00
Turner & Butler reforming road opposite 49, 50 & 51,			80 00
Daniel Bemus reforming road above Meadville,		700 00	50 00
Albert E. Bull building bridge and embankment on Section 8,			200 00
Taylor Randolph making road at upper end of bridge,		59 70	
Joseph Fox repairing bridge embankment Sec. 35,		5 00	
Nathan F. Randolph building dam on Sec. 66,			175 00
		$8,859 15	$8,628 62

No. 5.

D.

STATEMENT of petitions for damages on the line of the French Creek Feeder, and the awards in each case.

Viewers.	*Petitioners.*	*Term.*	*Award.*
	*Timothy Alden	April	$ 330 00
Bevan Pearson	*John P. Davis		10 00
Joseph Smith	*Daniel Heustis		220 00
Wilson Smith	Robert Mead		
Martin Strong	*Elihu Butler		100 00
Amos Judson	*Heirs of S. Derickson		250 00
	*John Birth		250 00
	*John Dickson		200 00

	*Edw. A. Reynolds	April	200 00
	Robt. Mead, et al		
	*Amos Pearson	August	175 00
	*Heirs of E. Grimes		50 00
John Vincent	*W. A. V. Magaw		
William Miles	John Wentworth		
John Boyd	Artemas Smith		
Hugh Bingham	John Wentworth, Jr.		
Robert Falconer	Daniel Smith		
	*William Magaw		
	*Levi Morris		125 00
	*Daniel Perkins		
	*David Dick		50 00
	*John Birth	November	
John Leech	*Edw. A. Reynolds		
Frederick Crary	*Daniel Heustis		
William Kinnear	*Elihu Butler		
Alexander Bowman	*John Dickson		
Pearson	*Heirs of Thompson		
	*William Gill		

NOTE.—Those marked with an asterisk are petitioners owning property in the village of Meadville.

No. 6.

E.

List of contracts entered between Nov. 1, 1828, *and Nov.* 1, 1829.

November 1, 1828.		Albert E. Bull, for building well fall, on Section 28.
January 8, 1829.		Taylor Randolph, for making road from upper end of bridge, Section 20.
April 16	do	Samuel Powers, for making turnpike, near Section 48.
May 6	do	Tracy, Barr & Hunt, for repairing Sections 1 and part of 2.
July 15	do	Turner & Butler, for repairing part of Sections 2 and 3.
Do	do	Simon P. Baley for repairing Sections 11, 12 and 13.
Do	do	Hosmer Kellogg, for repairing Section 17.
Do	do	Bull, Wightman & Harroon, for repairing Section 18.
Do	do	Patterson & Mallery, for repairing Sect. 19
Do	do	Bull, Wightman & Harroon, for repairing Section 20.

July 15	1829	James M. Dickson, for repairing Section 21.
Do	do	Baldwin & M‘Cord, for repairing Sections 25, 26 & 27.
Do	do	Shattuck & Ford, for repairing Section 29.
Do	do	Albert E. Bull, for repairing Sects. 30 & 31.
Do	do	M‘Farland & Selkregg, for repairing Sections 32 and part of 33.
Do	do	Baldwin & M‘Cord, for repairing part of Sections 33 and 34.
Do	do	Baldwin & M‘Cord, for building waste wier on Section 26.
Do	do	Daniel Bemus, for building waste wier on Section 16.
Do	do	M‘Farland & Town, for building 6 waste wiers.
Do	do	Turner & Butler, for making road opposite Sec 48, 49, 50 and 51.
June 25	do	Beatty & Shoemaker, for building Farm bridge on Section 44.
July 1	do	Albert E. Bull, for puddling Section 4.
August 15	do	Bull & Findley, for repairing Sections 7, 8 and 9.
August 20	do	James Fleming, for repairing Section 5.
August 1	do	Randolph & Odell, for repairing Section 64.
Do	do	James M. Dickson, for repairing Section 63.
Sept. 15	do	James M. Dickson, for repairing Section 62.
Sept. 19	do	Joseph M. Fox, for repairing bridge embankment Section 35.
October 1	do	Robert T. King, for clearing land overflowed on Section 77.

No. 1.

PENNSYLVANIA RAIL-WAY.

Report of John Barber, Superintendent of Pennsylvania Railway, Nov. 24, 1829.

To the Board of Canal Commissioners.

GENTLEMEN:

The superintency of the Pennsylvania railway, extending from Columbia to the city of Philadelphia, having, by a resolution of your honorable board devolved upon me, and being officially apprised of the same, I immediately repaired to Harrisburg, and entered upon the duties of that office.

The contracts which had previously been entered into, for the road formation of 40 miles of railway, together with those for the lges and culverts occurring on the line, were handed over to by my predecessor. The distance had been divided into 40 tions of about one mile each. twenty whereof were located and tracted for on the eastern end, and termed the eastern division, l twenty on the western, called the western division.

In order to comply in as concise a manner as practicable with requisitions of the act of assembly, passed on the 16th day of ril, 1827, and with instructions received from the secretary of board, I herewith transmit tabular statements of the condition l progress of the work.

Those marked A, B and C, to which I shall first call your at- ition, presents a list of all contracts entered into on the part of state from the 18th day of February last to the first Monday November, 1829; they will exhibit at one view the names of ntractors, dates of contracts, prices at which the work was ken, together with the per centage retained to secure the com- tion of the contracts, and the amount of monies paid on each.

The next in order of reference is that marked D, presenting a ist of all persons employed in the engineer department, from 1st of June to the 31st August, and statement E shows the esent organization of the corps, to each of which lists, are attach- their rates of compensation.

Statement F damages which have been paid, and statement G hibits a detailed report of Major Wilson, the principal engineer on the line, in which is contained all the information required a resolution of the board, passed at the session in October last; d with instructions subsequently received from the secretary in lation to a "statement of the amount at which each section was timated, by whom made, the amount of the mistakes in the esti- ates, and the cause." In referring to this paper, it will be seen at a balance of $6,910 69 is shown against the present contracts, om the estimates of 1828: but as the grubbing, which amounts $2,837 70 was not taken into estimates of 1828, the shortening distance, consequently lessening the expense of fencing on the ie, and the difference of damages in favour of the commonwealth, here the line has been changed at the village of Hempfield, would proper items to be charged against the above balance; it would ave but a small sum as the excess.

As yet no contracts for damages have been entered into, nor ve any suits been brought against the commonwealth. I found impracticable to make contracts until more of the work was mpleted, as the exact amount of damages until then could not ascertained.

I would here observe, that releases for damages to property rough which the railway is located, have been executed to a nsiderable extent. The line passes from the canal basin at or ar the Columbia bridge, about a mile, to where it ascends the clined plane, through very valuable ground in the borough of olumbia; the owners, with very few exceptions, have relinquish- ; and Mr. William Coleman, through whose lands the line passes near a mile, and Doctor Muhlenberg, have released to the commonwealth; some others have also signified that it is not their intention to ask damages.

The work upon the line has progressed with great steadiness; the contracts have been driven on with as much rapidity as the nature of the work and the state of the funds would warrant; nine sections have been completed to the satisfaction of the engineer and superintendent, thirteen more are nearly finished, and it is confidently expected that if the weather should prove favorable until the first of January next, all, except a few of the heaviest sections will be finished. The masonry of the bridges and culverts is in a forward state, and but a short season of good weather in the opening of the spring will be required to finish all the stone work upon the line. Owing to the low state of the waters during the past summer, the timber intended for the superstructures of the bridges could not be delivered, in consequence of which no wood work has been raised.

The piers of the principal bridges have been covered in and completely secured from the operations of the frost.

Competition for contracts upon the line of rail way having been great, the work was taken at moderate prices, therefore a large amount of work has been executed for the money expended, and it is due to the contractors to state, that had it not been for their persevering industry, many contracts would have been declared abandoned.

The whole amount of work as estimated to have been done up to 23d Nov. 1829, is,	$104,256 28
Add to this amount paid to engineers, damages, incidental charges and $927 50 paid Major Douglass on survey of eastern termination of the rail way,	10,700 26
Aggregate amount	$114,956 54
From which deduct the disbursements which have been made from this office since the 15th June	93,524 11
Aggregate of balance,	$21,432 43
From this balance deducte what is now due to contractors being the amount of certificates issued in November,	4,964 05
This balance is the percentage, retained and will only be payable as the contracts are completed.	$16,468 38

By a resolution of the board passed at their last session, it was recommended to the acting commissioners and superintendents on the different lines of canal and rail way, to issue certificates for the amount of estimates due. Those issued from this office for the months of September and October, have all been taken up and cancelled, and there now only remains in circulation an amount equal to $4,964 05 being the balance of November estimates.

, from the 1 of the dif-
es, 20 exten r contract
ce is divided

Artificial stone.	Price.	ngineer in-tions.
	30	
66	30	
	30	
10	30	
30	30	
613	30	
106	30	
694	20	
103	30	
241	21	
300	30	ke, $56 70
218	30	
	E	
	E	
	30	
	30	
	30	
500	30	
119	30	ra hauling
	30	24
–	30	
	33	
	30	
	40	
	45	$304
	30	
	30	
	30	
1251	30	
1029	30	
2911	30	
	30	
24	30	
	30	
	E	
	E	
1213	30	
107	30	
1933	30	

passes near a mile, and Doctor Muhlenberg, have released to the commonwealth; some others have also signified that it is not their intention to ask damages.

The work upon the line has progressed with great steadiness; the contracts have been driven on with as much rapidity as the nature of the work and the state of the funds would warrant; nine sections have been completed to the satisfaction of the engineer and superintendent, thirteen more are nearly finished, and it is confidently expected that if the weather should prove favorable until the first of January next, all, except a few of the heaviest sections will be finished. The masonry of the bridges and culverts is in a forward state, and but a short season of good weather in the opening of the spring will be required to finish all the stone work upon the line. Owing to the low state of the waters during the past summer, the timber intended for the superstructures of the bridges could not be delivered, in consequence of which no wood work has been raised.

The piers of the principal bridges have been covered in and completely secured from the operations of the frost.

Competition for contracts upon the line of rail way having been great, the work was taken at moderate prices, therefore a large amount of work has been executed for the money expended, and it is due to the contractors to state, that had it not been for their persevering industry, many contracts would have been declared abandoned.

The whole amount of work as estimated to have been done up to 23d Nov. 1829, is,	$104,256 28
Add to this amount paid to engineers, damages, incidental charges and $927 50 paid Major Douglass on survey of eastern termination of the rail way,	10,700 26
Aggregate amount	$114,956 54
From which deduct the disbursements which have been made from this office since the 15th June	93,524 11
Aggregate of balance,	$21,432 43
From this balance deducte what is now due to contractors being the amount of certificates issued in November,	4,964 05
This balance is the percentage, retained and will only be payable as the contracts are completed.	$16,468 38

By a resolution of the board passed at their last session, it was recommended to the acting commissioners and superintendents on the different lines of canal and rail way, to issue certificates for the amount of estimates due. Those issued from this office for the months of September and October, have all been taken up and cancelled, and there now only remains in circulation an amount equal to $4,964 05 being the balance of November estimates.

Statement A. exhibiting a list of all the contracts entered into for the road formation of 40 miles of rail way, from the 19th February to the 2d November, instant, specifying the date of each contract, the prices of the different kinds of work, the per cent. retained, and the amount paid on each section. - Of the above 40 miles, 20 extending westward from Philadelphia and 20 extending eastward from Columbia, were put under contract agreeable to a resolution of the board of canal commissioners, dated 9th December, 1828. This distance is divided into sections of about a mile each.

No. of section.	Contractor's Names.	Date of contract.	Grubbing	Cubic Yards.																Per cent. retained.	Amount paid.	Remarks.	Extra work ordered by engineer included in cost of sections.
				Excava.	Price.	Hardpan.	Price.	Embk't.	Price.	Hard slate.	Price.	Soft slate.	Price.	Artificial stone.	Price.	Solid rock.	Price.	Cross drains per ft. lineal	Price.				
		1829																					
1	Lloyd & Little	23d Feb.		4767	6		8	5562	9		30		20		30	45	50	40	50		$800	completed	
2	Do do	23d Feb.	$150 00	12590	6		8	7258	10		30		20	66	30	156	50	50	50	$351 48	1402 52	nearly do	
3	Do do	do	1 50	513	7		9	276	10		30		20		30		50		50	13 01	52		
4	Cornwell & Houston	21st Feb.	22 00	5319	7	687	13	5376	10	12	20	395	15	10	30		45	261	125	283 47	1130 77		
5	Wm. B. Hunt & Co	13th April	50 50	20053	10	3774	20	4093	10	150	60		20	30	30		50	67 61	80 140	674 91	2697 88		
6	Do do	do	53 50	11038	8	2500	20	2496	11		30		20	613	30		50	34	50	383 42	1529 61		
7	C. & H. Blanchard	19th Feb.	238 50	7661	6½		25	6203	10		30		20	106	30	598	50	62	50		1705 80	completed	
8	Seitz & Hoefgan	24th Feb.	45 50	20621	11		20	2344	10		30		20	694	20	610	50	35	50	602 23	2407 98	nearly do	
9	Do do	do	21 50	7481	11		20	5966	10		20		20	103	30	140	50	60	50	314 64	1257 27	do do	
10	John Snyder & Co	3d March	15	8112	6½		17	7447	10		38		21	241	21	198	75	200	50	323 91	1298 60	do do	Extra paving across turnpike, $56 7
11	Thomas Lynch	16th Feb.	7 50	5455	6		8	5180	8		30		20	300	30		37½	115	50	147 60	589 10	do do	
12	Samuel C. Stambaugh	30th March	8 50	6937	8		25	5045	10		30		20	218	30	282	50	137	50	301 62	1203 28	do do	Extra hauling, $167 04
13	Slaymaker & Gray	15th Sept.	7	2889	8		E	4584	10		E		E		E		E		E	185 32	740 40	do do	Do do $229 20
14	Do do	do			8		E		10		E		E		E		E		E				
15	John C. Lessig & Co	21st Feb.	50	5481	7		15	5320	9		37		25		30		35	118	50	246 67	984	do do	Do do $259 20
16	James Smith & Co	5th Feb.	215		7		11		8		19		17		30		39		50	43	172		
17	James Gray	23d Feb.	49 50	7720	7½		20	830	9		30		20		30		50	31	50	144 56	574 50		
18	Do do	do		5375	7		20	13739	9		30		20	560	30	210	50	56	50		2307	completed	Constructing road and extra haulin for embankment, $621 24
19	Samuel Boyd	do	14 25	8790	8½		20	6226	9½		30		20	119	30	68	50	191	50		1518 06	do	
20	Do do	do	136	11772	8½		20	7557	10¾		30		20		30		50	149 103	80 75	420	1680 75		
60	James Smith & Co	25th Feb.	198	18595	8		16	11973	9	1319	20	10361	17		30		40	82	50	956 19	3821 95		
61	Lessig & Seigfried	21st Feb.		3541	8		20	2969	10		37½		26		33		45		50	116 68	443 50	nearly completed	
62	John Snyder & Co	3d March	60	5440	8		20	4376	9	41	30	825	20		30		50	57	50	218 84	876		
63	Barker & Downing	21st Feb.	206	9360	7		18	8306	10½	595	30	1711	20		40		50	143	62½	530 25	2117 15		Walling and extra hauling, $304
64	Do do	do	72	7467	7½		18	6271	9½	931	32	2163	22		45		50	282	62½		2193 80	completed	
65	A. E. Findley	19th Feb.	21 25	8994	9		20	5130	11	50	30	2266	20		30		40		50.	370 93	1480 28		
66	Do	do	22	6687	8		20	4991	9	48	30	901	20		30		40	43	50	244 61	976 14	nearly completed	
67	Dodge & Carnoross	23d Feb.	153	8412	8	800	20	4250	9		30	981	20		30		50	267	50		1698 16	completed	
68	Cook & Delano	do	88	7865	7½	1305	25	7096	10		30		20	1251	30	34	50	138	62½		2196 01	do	Draining and sodding, $69
69	Do do	do	25	8084	8	2363	20	7829	8		E		E	1029	30	232	50	270	62½		2364 09	do	
70	M'Clean & Flin	20th Feb.	87	31102	9½	851	25	17354	12		20		15	2911	30	2331	50	28	50	1496 53	5977 19		Extra paving, $84
71	John C Lessig & Co	21st Feb.	87	6984	6¼	385	14	7337	10		33		25		30		45		50	262 01	1049 09	nearly completed	
72	James R. Scott	23d Feb.	15	5689	9	2045	20	10196	11		30		20	24	30		50		50	412 41	1652 36		
73	Do do	do	14	10198	7¾		20	6586	10		30		20		30		50	40	50	292 93	1176 01		
74	Do do	do	51	15594	7¼		20	17987	12		30		20				50	104	50	649 90	2596 09		
75	Lessig & Seigfreid	do	21	8586	6		13	6510	9		31		20		E		60	155	50	245 56	1683	nearly completed	Extra hauling, $29
76	Bevans, Morrison & Co	21st Feb.	33	10174	7¾	800	20	6030	10		30		20		E		50	62	50		1729 34	do do	Do do $116 34
77	John C. Lessig & Co	23d Feb.	21	5973	6¼	1752	13	7995	11		30		20	1213	30		50	30	50	388 56	1551 79		Extra walling, $45
78	M'Lellan & Blackstock	25th Feb.	315	1069	8		25	949	10		30		20	107	30		50	182	50	124 27	494 25		
79	Do do	do	95	16846	8	1862	25	16087	10		30		20	1933	30		50		50	819 98	3276 80		
																				$11,565 50	$62,002 82		

ow under contract, from the 17th
retained, and the amount paid on

STATEMENT B.—Exhibiting a list of all the contracts entered into for the mechanical work on that part of the rail way now under contract, from the 17th February until the 2d November 1829, specifying the date of each contract, the prices of the different kinds of work, the per cent retained, and the amount paid on each.

No. of section.	No of bridge.	Contractor's Names.	Date of contract.	Excavation pr. cubic yard.	Embankment pr. cubic yd.	Masonry per perch of 25 ft.	Woodwork per ft. lineal.	Contract in gross sum.	Per centum retained.	Amount paid.	Remarks.
2	2	Wilton Houston, & Co.	21st February	12	12	$1 62½	$3 25	—	$158 08	$550 9	
2	3	do do	same						43 24	172 4	
3	4	do do	same						82 76	331 0	
4	5	do do							165 08	659 2	
4	6	do do							113 55	453 2	
5	7	do do							60 38	241 5	
5	8	do do									A culvert to be substituted
6	9	do do							19 55	78 2	Foundation laid, culvert substituted.
7	10	do do							60 39	240 0	
8	11	do do				1 75			94 41	376	
9	12	James Moore & Co.		12¼	12¼	1 62½	10		997 02	3986 6	
12	13	Wilton Houston & Co.		12	12	1 62½	3 25		61 84	245 5	
13	14	do do							155 34	619 3	
13	15	Campbell and Town	18th February	E. E.				$24,600	990 50	3965 6	
18	16	J. P. Schuyler & Co		13	20	1 62½	7 75		701 88	2802 1.	
18	17	Wilton Houston & Co.	21st February	12	12	1 75	3 25				Culvert to be substituted
63	Extra	Chalkley Jefferies	1st July	16		2 50	5 00		96 75	387	Over valley road
66	56	Ben Smith	17th February	8	10	2 75	4 25		222 12	882 8.	
68	57	William Ingram & Co.	19th February	18		2 00	5 60		300 40	1199 6	
77	Extra	C Jefferies & Co.	15th October	E. E.	F. E.	2 30	9 30		100 00	400	Over old Lancaster road
									$4403 29	$17,589 8	

CULVERTS.

No. of section	No. of culvert	Contractors names.	Date of contract.	Per perch of 25 cubic feet		Per centum retained.	Amount paid	Remarks.
60	6, 7	Cook and Delano	23d February	$2 00			318 00	Completed
60	extra	Samuel Whiteside	15th October	2 75		55 00	220 00	In lieu of bridge No. 55, abandoned
62	8	John Snyder & Co.	23d February	2 00				
65	9, 10	Cook and Delano		2 00		34 00	154 00	
66	extra	C. Jefferies & Co.	1st October	2 25			149 00	Completed
67	11, 12	Dodge and Carneross	23d February	2 00		36 80	147 20	
70	13, 14	Cook and Delano		2 00			529 00	Completed
71	15	J. C. Lessig & Co.		2 00		58 40	234 00	
72	16	James R. Scott		2 00				
76	17	same		2 00		30 00	110 00	
74		same	22d June	2 00				
74	extra	C. Jefferies	15th October	2 40		77 00	307 00	In lieu of bridge No. 58
75		John C. Lessig	23d February	2 00			116 00	Completed
76		Bevans, Morrison & Co.	15th July	2 00			104 00	Completed
77	18, 19	Cook and Delano	23d February	2 00			420 00	Completed
78	20	James R. Scott		2 00				
79	extra	C. Jefferies	15th September	2 25			522 00	In lieu of bridge No. 59, completed
						$311 20	$3,530 20	

STATEMENT C —Exhibiting a list of all the contracts entered into for fencing, from the 22d July to the 2d November 1829, the prices per rod or pannel, the per cent retained, and the amount paid on each.

No. of section	Contractors names.	Date of contract.	Price.	Rod or pannel.	Per centum retained.	Amount paid.	Remarks.
part of No. 1	Jacob Strickler	15th September	1 20	Rod		86 85	State released from future costs of fencing
1	William Wright		1 20			100 00	same
1	John L. Wright		1 20			63 00	same
1	W. Wright for Miss Boude		1 20			125 00	same
2	Solomon Heiss	3d August	1 20		15 84	63 36	same
2 3	John Forrey, sen.	1st	1 23				same
3	Andrew Gerber	1st	1 23				same
4	Joseph Rohrer	15th	1 25			40 00	
4 5	John Rohrer	1st	1 25				same
5	Michael Haruish	1st	1 25			100 00	same
6	Godleib Sehner	15th September	1 25				same
8	John Witmer	7th	1 25				same
9	John Brubaker	6th August	1 25			70 00	same
17 18	Mark P. Cooper	3d	1 60			521 60	
18	same		1 60				same
19	Isaac Conard	15th	1 75				same
20	Michael Lapp	3d	1 75		52 50	210 00	same
19	Bruner and Jacobs	2d September	1 75			765 00	
20	Lap for King	15th	1 75				same
20	Joseph Byler	3d August	1 75				same
20	James Porter	11th	1 75				same
20	Jonathan Weaver		1 75				
60	Samuel Rodgers	2d October	87½	Per pannel			
60 61	Samuel Lewis		70				released
61	James Dempsey	22d July	70			42 70	same
61	Mordecai Thomas	28th August	70			170 25	same
61	Abraham Philips		70		23 40	90 00	same
62	John G. Bull	2d October	70				same
62	Robert T. Evans		70				same
62	John Thomas		70				same
62 63	Joshua Evans	28th August	70		40 00	156 00	same
63	Wm. Guthrie		70			53 90	same
64	John P. Vanleer	15th October	70				same
64	John Pugh, jr.	29th August	70		23 00	92 00	same
65	Samuel Priest	12th October	75				
65	John Kugler	13th	75				released
65	John Taylor	6th	75		9 25	85 00	same
66	Jeremiah Joint	9th	75				same
66	Catharine Henderson	15th	75				same
67	Thomas J. Grove	9th	75				same
67	Edward Siter	28th August	75				same
68	Hannah Abrahams	20th	75				same
68	Benjamin Maid	12th October	75				same
69	John Pugh, sen.	21st August	75				same
69 70	William Morgan		75				same
70	Alexander P. Gaskell		75				same
73	Miller and Garrigus		80				same
74 75	Charles Kugler		80		94 20	613 00	
76	Edward R. Price	20th August	80			390 40	released
76	A. E. M'Keever	22d September	80				same
77	Merribah Morris	14th	80		22 20	89 00	same
77 78	Samuel Staddleman	21st August	80				same
from 60 to 79	Dodge and Carneross	9th October	1 32				
					$280 39	$3675 06	

7

oad

ection

No. 5.

Table exhibiting the probable cost of work unfinished on November 15th, 1829, upon 40 secions of the Pennsylvania rail-road.

Road forming—grubbing, excavation, embankment, cross drains, and protection walls.				Bridges and culverts—Excavations, foundations, filling in wing walls.			
Sections.	Length, chains, links	Cost of work done.	Probable cost of work unfinished	Numbers	Cost of work done.	Probable cost of work unfinished.	Remarks.
1	78.00	$ 800 00	Finished				
				2	$ 703 65½	$ 48 75	This includes excavatio for foundations and filling in wing walls.
2	77.80	1752 00	$ 524 00	3	232 98	48 77	do do do do do
3	65.00	65 01	1989 21	4	413 81	122 01½	do do do do do
				5	825 35	229 60	do do do do do
4	90.90	1414 24	1790 40	6	576 77½	85 23	do do do do do
5	79.80	8372 80	1991 50	7	525 85½	48 75	do do do do do
						150 00	Culvert subsötuted forbridge No. 8, not commenced.
6	69.00	1913 03	1891 75			850 00	do do 9, do
7	84 39	1705 80	Finished	10	208 61	188 35	Includes excavation fo foundations and embankment wings.
8	68.50	3019 51	481 90	11	470 41	861 35	do do do do
9	73.08	1571 91	100 00	12	4983 62	9,741 98	This includes embanknent and excavating foundations; it also includes the masonry of cut sand stone for the recesses of the piers which will cost as extra $ 1,105 50, the quarry is 12 or 14 miles distant, three piers have also been added to this bridge in the place of wooden frames in the original plan.
10	79 00	1622 51	198 80				
11	77.00	796 70	860 90				
				13	507 22	123 90½	This bridge has two spans instead of one in the original plan.
12	86.50	1509 90	450 00	14	774 70½	1173 30½	Includes excavation and embankment.
13	70 18	925 72	584 00	15	4953 90	24,508 00	In the amount of work done $ 166 65, is charged for 305 perches of loose rubble stone placed around the bases of piers No. 1 and 2, and in the amount charged for work unfinished, the masonry of eight stone piers at $ 1 75 per perch in the place of eight wooden frames as laid down in the original plan, is included. It is considered advantageous for the durability of the work that such a change in the plan of the bridge should be made. The original contract for the whole structure was $ 24,000.
14	76 07		2050 48				
15	77.75	1230 67	709 63				
16	79.00	215 00	1760 60				
17	76.75	719 06	862 50				
18	80.28	2507 00	Finished	16	5504 01	5530 49	Total cost when competed $ 9,084 50, not including damages for stopping mill at the creek.
19	80.00	1518 06	Finished			556 25	Culvert for bridge No. 17 not commenced.
20	141.55	2100 75	1797 64			505 00	Culvert for bridge on 21st section, at Weaver's farm.
20 miles 5 chains.						358 00	Public road bridge on section 5, not commenced.
						300 00	Farm bridge on section 6, do
						358 00	Road bridge on section 8, do
						800 00	Road bridge on section 60, in the place of a bridge.
60	76.95	4778 14	8667 55		275 00	935 00	Culvert.
					150 00		Culvert, finished.
					178 00		do do
61	79.45	360 18	695 28				
62	77.80	1094 84	1185 59			164 00	do unfinished.
63	82.17	2647 40	2047 54		488 75	110 00	Rail way bridge.
64	79.00	2193 80	Finished				
65	80.00	1851 21	10,279 49			1400 00	Road bridge not commenced.
					168 00	256 00	Culvert.
						580 00	do
66	80.00	1220 75	751 03		1110 00	1747 00	Rail-way bridge.
					149 00		Culvert finished.
67	79.82	1698 16	Finished		178 00		do do
68	84 05	2196 01	do		1490 00	3335 00	Rail-way bridge.
69	77.00	2361 09	do				
70	79.50	7473 72	2456 82		529 00		Culverts 13 and 14 finished.
71	73.00	1311 10	783 21		292 40		do do
						1080 00	2 road bridges.
72	84.00	2064 77	5022 81			55 00	Culvert No. 16.
73	80.00	1462 94	1860 88		140 00	25 00	Culvert No. 17.
74	84.00	3745 99	8367 29		584 00	600 00	Culverts.
75	80.00	1328 56	519 02		116 00		Culvert finished.
76	79.00	1729 34	Finished		104 00		do do
					420 00		do do
77	80.00	1940 35	1990 85		500 00	700 00	Old Lancaster road bridge
78	77 55	618 52	4663 50				
79	119.61	4095 78	2363 96		528 00		2 Culverts finished.
20 miles	21,40 links						

To fulfil the requisition of the canal law of 1827-8, Major Wilson, on the 9th instant, caused a survey and examination to be commenced on the line of rail way, extending west of the Susquehanna to the borough of York. The survey has been completed, and the report thereon together with the drafts and estimates, will, as soon as they can be made out, laid before you.

All of which is most respectfully submitted,

JNO. BARBER, *Supert.*

Pennsylvania Rail Road office,
Columbia, Nov. 24, 1829.

No. 5.

G.

Table Exhibiting the probable cost of work unfinished on the 40 *miles of the Pennsylvania Rail Way, under contract,* 15*th Nov.* 1829.

Pennsylvania Rail Way,
Eastern Division, November 21, 1829.

To the Superintendent of the Pennsylania Rail Way—

SIR:—

In compliance with the instructions of the board of canal commissioners, I herewith transmit an estimate taken on the 15th inst. at contract prices, of work remaining to be done on the western division of the rail road, from section 1 to 20 inclusive, and on the eastern division, from section 60 to 79 inclusive, terminating at the foot of the inclined plane east of the residence of the late Judge Peters. The balance of work on each of the unfinished sections has been proportionally estimated according to the various qualities of rock, slate, or other substances which have appeared in the progress of graduating the road: a full allowance has therefore been made in the amount required for finishing them. As it may be satisfactory to the board to know what alterations or improvements have been made on the line, since my report of December, 1828, I will briefly submit the following statement—All curves upon the line which were before traced by a minimum radius of 541 feet, have been changed to a radius of 680 feet, in effecting this object, and in straightening the line, particularly upon the eastern 20 sections, additional expense beyond the estimate of 1828 has been incurred, but the advantage derived from these improvements, are considered more than equivalent to the increased cost. Upon the western division considerable curves traced in the former location are avoided. The two most prominent points of alteration, are on sections 6 and 8. In the location of 1828, a curved line was conducted to the south of Hempfield the road is now traced through that village, and a majority of those persons interested in the property, have released to the commonwealth the damages which would arise from occupying their land. These improvements, with others of a minor character, and which the nature of the country enabled us to effect, have so dimished distance upon this division, that 17 chains only remain on the original 21st section for graduation. The undulating surface of the country through which the 20 sections of the eastern compartment of the rail way is traced, afforded but little opportunity of shortening distance, the gain is only 8 chains, but the line so far as regards its former serpentine character has been considerably modified; this however could not be effected without incurring an increase of cost in the construction. The materials found upon both divisions now under contract, and which will be applied for paving the horse path and securing the blocks of stone upon which the rails are to rest, will not be sufficient for these purposes—I have endeavored by every means in my power to prevent a waste of such materials, as they will be valuable in our further constructions. Having given you briefly the information required, as designated under the second head of the 1st resolution of the board, I now come to the 4th item embraced within the additional instructions addressed to you by the secretary on the 5th of the present month, viz—"a statement of the amount at which each section was estimated," &c. I have already stated that various alterations and modifications have been made on both divisions of the rail way. The general course of the line has not been materially changed, but its constituent parts have been so altered from the former location into sections of a mile each, (which will be seen on referring to the table of distances to each section,) that I can now only give a comparative view in relation to the former estimate of results taken from the whole divisions.

To amount charged for road forming in 1828, for 20 sections of 1 mile each, and 63 chains of section No. 21, including contingencies	$37,910 70
Add to above, the cost of paving and railing 58 chains being the distance saved in present location	8,335 89
To amount estimated with contingencies, for constructing bridges and culverts on 20 miles and 63 chains of section 21	60,090 90
Add to above, the substitution of stone piers for wooden frames in bridges, No. 12, 15 & 16 and cut stone for recesses of the piers of bridge No. 12,	7,646 25
To amount of road forming from estimate (1828,) of 20 miles from section 60 and 29, 40 chains to foot of inclined plane at Schuylkill river, with contingencies,	54,237 67
Add to above, the cost of constructing 8 chains of paving and railing, being the distance now saved	1,140 77

To amount estimated, &c. on same sections for bridges and culverts		16,380 21
Total amount of estimate including contingencies.		$185,750 72
To amount paid on contract for work done on 20 section of road forming, from Columbia eastward, and the estimate of what remains unfinished	$46,032 78	
Deduct 10,741 cubic yards of stone for horse path, &c. remaining unbroken on the road, at 48 cents per cubic yard, charged, prepared in other estimate at 73 cents per perch, 78 per cubic yard	5,155 68	
		40,877 10
To amount paid on contract for bridges and culverts, with the estimated cost of unfinished work		62,754 63
To amount paid on do. for 20 sections of road forming, from section 60 to section 79 inclusive	$85,480 35	
Deduct 26667 cubic yards of rock and hard slate for paving, &c. at 46 cents per yard	12,266 82	
		73,213 53
To amount paid on contract for bridges and culverts, with the probable cost of unfinished work		15,816 45
Total cost of 40 sections on contract		$192,661 41
To amount estimate of 1828 as above		185,750 72
Balance against the present contracts		$6,910 69

NOTE.—The grubbing was not estimated in 1828, it amounts in the 40 sections to $2837 70.

From this statement it will appear that the western division, is $10,351 34 below the estimate of the location of 1828, and the eastern division $17,262 03 above that estimate.

Very respectfully, yours,
JOHN WILSON, *Engineer.*

No. 4.

D.

STATEMENT exhibiting a list of the persons employed in the Engineer Department on the Pennsylvania Rail Way from the 1st June to the 31st August, with the wages or salary of each.

John Wilson, principal engineer, at $2,250 per annum.
Emmerson M'Ilvaine, principal assistant, from June 1st to 5th

August, at 4 00 per day.

Robert Pettit, sub assistant engineer, from June 1st to 31st August, at 2 00 per day.

Samuel W. Mifflin, sub assistant engineer, from June 1st to 31st August, at 2 00 per day.

J. B. Moore, sub assistant engineer, from June 1st to 31st August, at 2 00 per day.

John P. Baily, sub assistant engineer, from June 1st to 31st August, at 2 00 per day.

Joseph G. Davis, rodman, from June 1st to August 31st, at 1 50 per day.

William J. Lewis, rodman, from June 1st to August 31st, at 1 50 per day.

William W. Torbert, rodman, from June 1st to August 31st, at 1 50 per day.

James Moore, rodman, from June 1st to August 31st, at 1 50 per day.

William H. G. Wilson, surveyor, from June 1st to August 31st, at 1 50 per day.

John Edgar Thomson, inspector of masonry and superintendent of bridges and culverts on eastern division, from June 1st to August 31st, at 3 00 per day.

Henry R. Campbell, inspector of carpentry and superintendent of bridges and culverts on western division, from June 1st to August 31st, at 3 00 per day.

Thomas E. Cochran, chainman, from July 6th to August 5th, at 1 00 per day.

Thomas E. Cochran, rodman, from August 6th to August 31st, at 1 50 per day.

Valentine Waltz, axe man, from June 1st to August 31st, at 1 00 per day.

Samuel Schmid, axeman, from June 1st to August 31st, at 1 00 per day.

John Gonter, axe man, from June 1st to August 31st, at 1 00 per day.

E.

Organization of the Engineer Corps, from the first day of September to the 2d November.

John Wilson, principal engineer, at $2,250 per annum.
John Edgar Thomson, principal assistant, at 3 50 per day.
Robert Pettit, sub assistant engineer, at 2 00 per day.
John P. Baily, sub assistant engineer, at 2 00 per day.
Samuel W. Mifflin, sub assistant engineer, at 2 00 per day.
J. B. Moore, sub assistant engineer, at 2 00 per day.
Wm. J. Lewis, rodman, at 1 50 per day.
William W. Torbert, rodman, at 1 50 per day.
James Moore, rodman, at 1 50 per day.

Thomas E. Cochran, rodman, at 1 50 per day.
Joseph G. Davis, surveyor, at 2 00 per day.
Henry R. Campbell, inspector carpentry and superintendent bridges and culverts on western division, at 3 00 per day.
William H. G. Wilson, inspector of masonry and superintendent bridges and culverts on eastern division, at 3 00 per day.
Valentine Waltz, axe man, at 1 00 per day.
Samuel Schmid, axe man, at 1 00 per day.
John Gonter, axe man, at 1 00 per day.
Joseph Mosher, clerk, from 15th June, at 2 50 per day.

F.

Statement of amount of damages paid for injury done to crops on the Pennsylvania Rail Way.

Cash paid Joseph Ditwiler, on part of Section No.			1,	$ 20 00
Cash paid Jacob Strickler,	do	do	1,	15 00
Cash paid Ezekiel Williams,	do	do	8,	20 00
Cash paid Abraham Eby,	do	do	19,	14 29
				$ 69 29

◆

No. 1.

ALLEGHENY PORTAGE.

Report of Moncure Robinson, principal engineer upon the Allegheny portage.

To the Board of Canal Commissioners of the State of Pennsylvania.

GENTLEMEN :

By the resolutions of the board of the 8th of December last, appointing me the engineer of the Allegheny portage, my attention was directed to three points, "1st, the constauction of a railway overcoming the summit by means of stationary engines, or self-acting planes, with intermediate levels, or moderately ascending planes. 2d, The construction of a Macadamized turnpike of the best kind, between the same points. 3d, The suggestion of any other plan which might occur to me as calculated to afford the best accommodation to trade."

It was further resolved,

"That Mr. Robinson be directed as soon as he shall have made the necessary examinations, to furnish the board with his views and opinions in detail."

Agreeably to this resolution, I have now the honour to submit to the board the following report :

Two considerations of less moment in the location of a canal, become objects of indispensable attention in that of a rail-road, and in determining its profile, viz. the amount and the direction of the trade to be anticipated on it; a knowledge of each fact, as far as it can be ascertained, is essential to a decision between rival routes, where it becomes often a question how far a more eligible trace may be justified at an enhanced cost. The proportion of trade, or its relative distribution in each direction, has its influence where no such question is to be settled, because on this *ratio* depends the graduation which may be advisable for each portion of the roadway, and which, of course, is to be approached as nearly as it can be attained, without incurring an expense more than commensurate with the object.

In a report of the 4th of December last, on a proposed railway connexion between the Susquehanna and Schuylkill, I took occasion to consider this subject in some detail. The conclusion was deduced that between the Susquehanna and the dividing ground, that is to say, *in the direction of greatest transportion*, the ascending graduation per mile should be reduced to its minimum, the remaining ascent being overcome by inclined planes and stationary power at points of convenient location. The reasoning which led to this conclusion, applies with greater force to the Allegheny portage. There can be no doubt that the trade must be immense on a line of railway, intended to connect the east and west, and two divisions of canal, each of which passes through a district peculiarly fertile in most valuable but ponderous minerals, and almost as little that whatever may be the present ratio of that trade, that from the west to the east must after a time preponderate.

No views which would be new in confirmation of the opinions here expressed, can be offered to the consideration of the board. Under this impression, they are submitted without comment.

The same views, however, which recommend a cheaper power than that of horses on a railway which is to traverse the Allegheny, and the largest facilities which can be afforded on the graduated portions of it, urge quite as strongly the greatest practical diminution of the amount of *absolute* power required; or, in other words, that the mountain should be crossed at the least elevation, and by a line of the least length which may be attainable. If, as is believed, the railway will in a few years have nearly as large an amount of trade as it can accommodate, all elevation beyond what is necessarily encountered, any unnecessary increase of distance and obstacles arising from unnecessary curvatures, will form a perpetual tax on this trade, which ought, as far as possible, to be avoided.

Preliminary to the trace of any route, a full examination was made of the summit, as far north and south as there was the least probability that a line would cross. It resulted in ascertaining the fact, that the sugar run summit, to which attention had been first drawn by Mr. Blair, and across which one of the lines of Mr. Roberts had been traced, was the most reduced point within the range of the contemplated connexion at which the mountain could be crossed. It next became an object of inquiry how far a diminished elevation might be attained by tunneling.

Bends of level were traced on each side of the mountain, (where the information sought for was not afforded by previous surveys,) so as to show by the proximity of these lines when plotted, the points which presented themselves under the most favourable aspect, and examinations were afterwards made on the ground at these points. It was ascertained that south of the northern turnpike, a more reduced elevation than that of the Sugar run summit could not be effected without incurring the expense of a tunnel of unreasonable length, and more than proportional expense, that north of the Blair's gap turnpike, two points presented themselves affording more than ordinary facilities, that at one of them a short distance north of Samuel Lemon's tavern, a summit level one hundred feet lower than the Sugar run summit might be effected by a tunnel of a mile, that at a second point one and a half miles further north, the summit level might be reduced 200 feet by a tunnel of a mile and one sixth, the greatest height of the comb of earth, in the former case being 177 feet in the latter 240 feet.

Setting aside the point of elevation, it was further apparent on a mere view of the country, that the greatest facilities for the location of a valuable line of rail way, would not be presented south of the turnpike, and it appeared from the surveys of the preceding season that any practicable line in this quarter could not be materially, if at all shorter than one passing along the western slope of the Allegheny mountain, crossing at the point first named, and descending by the Blair's gap valley. Under these circumstances it was evident, that further examinations might without hazard be confined to such lines as would cross the summit either at the Sugar run gap, or at one or other of the points above named, as favorable to a reduction of the summit level.

The line first traced was that crossing immediately north of Samuel Lemmon's tavern, this appearing on a reconnoissance of the ground, to combine more completely than any other the recommendations of reduced elevation, diminished distance and relative facility. A topographical plan and profile of this line revised at each point, which admitted of any material improvement, is herewith presented. It will be unnecessary to trouble the board with a detail of the extended and minute examinations which have led to the conclusion that it presents in an eminent degree the most eligible route for a rail road, or the plan contemplated by lifts and levels. It may be proper however to remark, that the line which crossed at a more reduced summit was with much reluctance abandoned, and only after it was discovered that it would prove much more expensive; on the western side of the summit much more circuitous, and that insuperable difficulties would attend the location of lifts along the Sugar run valley.

The line adopted may for convenient consideration be classed in two divisions, commencing at a BM on a beech, on a branch of Clearfield north 45° 30′ west, of Lemmons 2,004 feet above our summit level, and going east, it curves on a radius of 500 feet to the western entrance of the tunnel at station 5. After piercing the mountain it is located on the steep slopes south of the north branch of the Blair's gap run, falling at five points, by inclined planes and in the intervening distances, at a graduation varying between $\frac{3}{100}$ths and $\frac{32}{1000}$ths of a foot per ten feet. The foot of the last inclined plane is located about six miles from the eastern entrance of the tunnel, and about one third of a mile below the Blair's gap inn. From this point the hills fall away on each side of the Blair's gap valley, and become too much indented with ravines to admit of retaining such a graduation as would have been preferred. It has been found practicable, however, so to distribute the fall of the valley as to give an average descent per mile from the foot of plane No. 5, east to Hollidaysburg.

A short distance below this village the rail road will connect with the eastern division of Pennsylvania canal, and the last 1538 feet of the line located, terminating at station 308, would be parallel with the proposed basin. Excluding this distance, and computing from S B M I, to the head of the basin, the length of the eastern division of the rail road will be ten miles and two hundred and seventy-eight poles.

The first 588 poles of the western division of the rail-road passes over ground of a very gentle declivity, sloping in the first instance towards Storm's run, a tributary of Clearfield, and afterwards towards the Laurel swamp branch of the Conemaugh. At the end of this distance, the inclined planes west of the summit commence, the line falling successively at Adam's run, Bear rock run and Ben's creek. A fourth inclined plane is located about three fourths' of a mile below Litzinger's saw-mill, and lowers the line into the valley of Conemaugh.

The graduation between these planes varies between $\frac{11}{1000}$ and $\frac{22}{1000}$ of a foot for each distance of ten feet, and may be made somewhat more gentle on a definitive location.

Station 214 at the foot of inclined plane No. 4, is 8 miles and one hundred and ninety-one poles from S B M I. From this point to the big bend of the Conemaugh, a distance of nine miles and two hundred and sixty-nine poles, the line is located (with the exception of a short distance from the foot of plane No. 4,) on the north side of the Conemaugh, and is graduated on a slope generally rising to, but in no case exceeding thirteen feet and two tenths per mile. At this point, plane No. 5 west, is located by which the line is lowered ninety-one and a half feet. Between the foot of this plane and Johnstown, nine miles and twenty poles, the Conemaugh is crossed five times so as to obtain for the rail-road the best and most direct line. The trace in this distance nevertheless deviates more from a straight line than on any portion of the route, on this part of the location the graduation is for the greater part of the distance as steep as 26 feet and $\frac{40}{100}$ths per mile, but at no point exceeds this descent.

The line of the rail road terminates at No. 671, near Johnstown, the last 1300 feet being at a convenient distance from an arm of the Conemaugh, which will be converted into a large and commodious basin by raising Livergood's dam and embanking on the opposite flat, deducting this distance, the whole length of the western division of the rail-road from S B M I to the head of the proposed basin, is twenty seven miles and ninety three poles, and the whole distance between the two basins thirty-eight miles and fifty-one poles.

The points adopted as points of termination for the rail road and of connection with the canals east and west of the mountain, are recommended after much consideration. It will be proper to explain to the board at some length, the reasons which have led to the conclusion that they are on the whole the most advisable.

It will be observed, on examination, that the profile of the western part of the proposed rail-road from the foot of inclined plane No. 4, to its point of termination is well adapted to the use of locomotive engines. A motive power may in consequence be adopted on this part of the rail-road, peculiarly eligible, where expedition becomes an object, and better adapted than any other to the case of a profile within the limits of locomotive graduation, and which for other power would not be advantageous. On the other hand there is little doubt that an ample supply of water for locks of even the small lift of five feet cannot be commanded from the Conemaugh, above the confluence of the south branch. This circumstance would have appeared decisive against an extension of the canal above Johnstown, had it been clear that an increased quantity could not have been obtained elsewhere. It was deemed proper however, to omit no view of the subject, which could with propriety be taken under the instructions given, and which might be desired by the board. Examinations were accordingly commenced with the view of ascertaining what further supply could be commanded at the confluence of the Munster and Ebensburg branches.

It is ascertained that a feeder which would not be expensive, for five and a half miles may be taken from the Bedford and Cedar swamp branches of the south branch, immediately above their junction and brought without any material difficulty to a depressed point in the dividing ground between the Conemaugh and south branch. From this point (a little south of William Brookbank's, on the Johnstown road,) it would be necessary to conduct the water by a vault of five feet diameter, a distance of 1000 yards, after which it would be discharged into one of the sources of Ephraim's run, and thence find its way along the bed of that stream to the Conemaugh, two miles above the point in question. A small portion of the waters of the Clearfield might also be commanded without much difficulty, and at several points on the Conemaugh reservoirs of large capacity, could if requisite be constructed.

Under these circumstances, it may be deemed perfectly practicable to extend the navigation west of the dividing ground, by locks of any convenient size. seventeen miles above Johnstown, and it is not to be denied that some very material advantages would flow from such a reduction in the length of the portage. It is believed however that these will be overbalanced.

First—By the increased expense of a canal in this distance, locks constructed on any permanent plan would cost as much, or nearly as much as the rail-way. To this is to be added the cost of a canal embracing much difficult ground and of a feeder involving a subterraneous passage of the length above stated.

Secondly—By the delay attendant on passing through as many locks as would be necessary to overcome the fall (400 feet) in this distance.

Thirdly—By the increased annual expenses on the canal when completed. This item for repairs and renewals alone might perhaps be equal on the canal and rail-road, but a large number of officers would be required on the former work, who might be dispensed with on the latter. Their salaries at the lowest rates at which competent officers could be procured, would form a per centage on the tolls which might be anticipated, worthy of much consideration, in an estimate of the relative value of either improvement.

Fourthly—By the interruptions to a continued communication between the east and west, which might be anticipated on this part of the line.

These would arise from two causes: 1st. From the peculiar liability of a canal presenting so large an amount of lockage in a short distance, to derangement; and 2dly. the obstruction of navigation by ice at a later period in the spring and at an earlier period in the fall of the year, than on other parts of the route. This last effect would result not only from the greater elevation of this part of the line, but the peculiarly confined character of the Conemaugh valley in this distance.

The subject, however, is submitted with due deference to the better judgment of the board. Should it be their opinion that the advantages of pushing canal navigation west of the Allegheny to the highest practicable point, preponderate over the disadvantages here exposed, it may be expedient to adopt the location of the rail road only as far as plane No- 4 west; and to cause a particular estimate of the expense of a feeder from the south branch, and a canal the remaining distance to Johnstown to be made before coming to a definite decision.

The eastern termination of the rail road appears to be a matter of much less doubt. A basin immediately above Frankstown, would be more easily supplied with water from the Juniata below the junction of the Beaver dam and south west branches, but would possess no other recommendation. The situation is represented as peculiarly unhealthy, and the only building ground would be either a very low flat or steep hill side. Should the point at which canal navigation will terminate east of the mountain, be as it is believed it will be in time, a large and flourishing depot, some better accommodation would seem to be required for the trade and the inhabitants, whose pursuits may lead them to settle near it. The same supply of water which can be commanded at Frankstown, may be commanded by the feeder lines laid down in the plan herewith submitted, at a point peculiarly picturesque, said to be uncommonly healthy, and presenting every advantage for the head of canal navigation; and one to which it may be extended with a very slight increase of lockage.

In the description of the line of the rail road, a mere outline of the trace adopted has been given. The consideration of the points at which stationary power must be adopted, and those at which inclined planes may be admissible, has been reserved; because a previous discussion of some points, and an exposition of certain principles on which this will depend will be necessary.

Wherever on a line of rail way a trade can be *regulated*, self acting planes are available. If the line of rail way descend, and the trade preponderate in the direction of the descent, stationary power at inclined planes becomes altogether unnecessary. If a summit is to be crossed, stationary power must be made use of to an extent sufficient to overcome the preponderance of the heavier trade, and the friction of the machinery employed in raising it; but this heavier trade after ascending, may be made use of to lift up a lighter returning trade.

Where of course, a trade on a line of rail way is nearly equal, power to a certain extent becomes indispensable at each plane, in either direction from the summit. Its amount may, however, in all cases be materially diminished by such a regulation of the trade as will bring trains of waggons to the foot and head of planes at the same time.

There can be but little doubt that the trade on the contemplated line of rail way, must be in a short time a much heavier one from west to east, than in the opposite direction. The bituminous coal of the Allegheny, which even now is taken occasionally over a very bad road to the villages on the Juniata, will probably of itself be equal in weight to the whole amount of iron and merchandize returning.

Under these circumstances, powerful steam engines (should steam be the power adopted), will be required at planes Nos. 1, 2, 3, 4 and 5 west of the summit, but if the trade be a regulated trade, the gravity of descending trains will be nearly or quite sufficient east of it.

Such a result may be attained in two ways. Either the privilege of transportation may be leased for a term of years, to individuals or a company, who should transport at fixed rates, or it may be effected by agents of the commonwealth at specified rates for toll and transportation.

I am aware of the preference which will always be given in Pennsylvania to public highways, on which the fullest competition may have play, and that very plausible objections may be made to either of the plans suggested. It is believed, however, that one or other disposition of the portage, at any rate for some years to come, is recommended by considerations of paramount weight. 1st. By the diminished amount of power required for any given amount of business, should the proposed rail road be a public highway, five steam engines averaging seventy horse power each, at an annual expense in fuel, wear and tear, and attendance, of $15,000, or other stationary power equivalent to them, will be required in addition to those stated to be necessary west of the summit; and at least one-third more horse power will be necessary on those portions of the rail road on which it is employed To understand this remark, it will be necessary to advert to the circumstance that a horse can for a short time sustain a stress of which he would not be capable for a series of hours Should transportation on the contemplated rail way be effected by lessees or agents of the commonwealth, horses operating in relays would be used on the short levels of the road, whilst locomotive engines would be employed on the longer. On these short levels a horse would be capable of very great effort in ascending, because this effort would be of short duration, and he would be relieved in returning. It would be otherwise, however, if it was a question of travelling the whole length of the rail road, ascending and descending in a trip an elevation of 2270 feet. His load it will be obvious in this case, could not very greatly exceed what would be his fair load from his starting point to the summit level.

Secondly—By the opportunity which it affords of dispensing with *crossing places and turns out*, between the inclined planes. These on a line of rail road in a mountainous country, add materially to its expense, in consequence of the increased width of roadway they require, occasionally at difficult points and on steep slopes, but could not be dispensed with, without so regulating the traffic as that trains travelling in either direction would progress with equal speed.

Thirdly—By the superior economy, as well as expedition of locomotive power. This, of course, must be given up between plane No. 5 west, and Johnstown, should the rail road be a public highway; as locomotive engines and horses could not be advantageously made use of on the same parts of the road. A further inconvenience would result from this circumstance, which may require some explanation.

The trade on the contemplated improvement must necessarily be irregular. During three or four months of the year at least, the canals may be expected to be bound up by ice, and at midsummer there will probably be but little trade to or from any point beyond Pittsburg, in consequence of the difficulties attending the navigation of the Ohio at that season. It can scarcely be expected that any competition on the proposed rail road, if a public highway, would insure adequate means of transportation for what might accumulate at each extremity of the road during those periods of the year when all the avenues of trade would be open. This end, however, will be attained, if transportation is effected by the commonwealth, or by individuals to whom the privilege shall have been leased. In the latter case conditions may be affixed and requisitions made, which will be easily complied with, both because a given amount of power will be productive of a larger result under this than under any other arrangement; and because a surplus number of locomotive engines may be retained on those parts of the road on which they can be used, without incurring any further expense when they may be unemployed, than the amount of interest on their cost.

It remains to be added, that should transportation on the proposed rail road be effected by agents, or responsible lessees of the commonwealth, the objections which have been made to the Pennsylvania line of communication, as presenting in its portage danger of delay and uncertainty, will be in a great measure avoided; and it may not be digressing too far or hazarding too much, to express the confident belief that under such a system, transportation may be effected, not only more expeditiously, but as cheaply and with more certainty by the portage, than it could have been by a water communication across the mountain, had this last been attainable.

The annexed paper marked A, presents a description, and an estimate in detail of each division of the rail road, divided into natural sections. It will be proper in this place to discuss the style of execution of the proposed improvement.

The width of the roadway formation will be twenty one feet. This will admit of two tracks of five feet width each, an intervening space of three feet, a foot path and drain on sloping ground; or of two tracks and two foot paths on embankments. In the few cases of deep cuttings which occur, an extra width proportioned to the length and depth of the cut, will be required.

Embankments, when but small vents are requisite to pass streams or spring torrents, are generally preferred to bridges, and in the formation of inclined planes where the profile of the surface is much depressed below that of the plane, the requisite graduation is attained by embankments or walling, and in no case by trusses. Undoubtedly a considerable saving in first cost would accrue from the substitution of wooden bridges, and frames of timber for the heavy walls and embankments which are contemplated. When it is recollected, however, that the great weight of a train of rail-road wagons would expose such structures to a stress under which they would occasionally yield, and that the destruction of one of them from this cause, or by a mischievous incendiary, might produce an interruption to trade during weeks or months, the propriety of dispensing with them, except under particular circumstances, will be at once perceived.

In the superstructure of the rail road more economy may be exercised than in grading or roadway formation. The cheapness of timber, and the facility with which they may be renewed, will recommend in the first instance at any rate, wooden rails plated with iron bars in preference to rails of malleable or cast iron. A superstructure of this description is recommended by the further consideration that a less expensive description of iron may be made use of for plating wooden rails, than would be required for rails entirely of metal.

Of course on those parts of the rail road on which steam power is contemplated, some extra strength will be requisite. The wooden rails must be stouter, and their points of support more frequent than on other portions of the work. It will also be proper to give to the plate rails a somewhat different section and some increase of weight. On the other hand some diminution of expense will be occasioned by dispensing with a horse path on this portion of the road way.

The following construction is recommended for the superstructure of the rail road (except at inclined planes) between Hollidaysburg and the foot of inclined plane No. 4, west, or on that part of the rail road on which horse power is contemplated.

Blocks of stone 2 feet 6 inches long, 2 feet deep, and 15 inches wide to be embedded every 8¼ feet apart on a layer of broken stone of the depth of 6 inches. Each of these blocks to be drilled at 2 points to the depth of eight inches, and its surface to be levelled with that of the roadway. On them, blocks of white oak or locust notched for the reception of rails to be attached with locust trunnels. The ends and points of support of the wooden rails to be secured in these blocks by a key so as to admit of removal, raising or shifting to the one side or other of the groove, in the simplest manner. The advantages of this construction are believed to be material, not only the rail is elevated and less exposed to the operation of causes which produce decay, but the inconvenience arising from a slight settling of the foundation may be at once remedied by a removal of the key and raising the rail, or if the parallelism of the rail way should be disturbed by shifting the rail laterally.

The least weight to which it has so far been found expedient to reduce locomotive engines, including the fuel and water with which they should be furnished at each point of supply, is six and a half tons, or about 2½ tons more than the weight of the cars and their loads, which are contemplated on the rail road. To meet this increased stress, the following construction is proposed on those parts of the rail road, on which machinery will be employed; or between plane No. 4. west and Johnstown.

Two feet cubes of stone to be embedded as before on broken stone, 7 feet apart from centre to centre in the direction of the rail road, and on these cubes sills of white oak or locust extending across the track to be bolted. The wooden rails to be keyed into the sills as in the former instance into the blocks. The only difference in the *principle* of the two constructions, it will be observed consists in extending the sills across the rail road track. This construction which would not be advisable on other parts of the rail road on account of its interference with the horse-path, is recommended on that portion on which locomotive engines will operate on account of its superior solidity.

Rails 6½ inches by 10 inches, and plate rails half an inch by two inches are proposed for those parts of the rail road on which horse power will be employed. For the remainder of the road and the superstructure of inclined planes, rails 8 by 12 inches, and plate rails having a cross section equal to 1 4-10ths inches will be required.

The whole cost of the contemplated improvement, it will be observed, is estimated at $936,004 87 cents. The prices allowed are deemed liberal, and believed to be sufficient to execute each description of work involved in the rail road in the most substantial manner. It would of course be unwise in the extreme to execute otherwise a line of communication on which not only the value of two great divisions of canal, but of many other improvements in the state must essentially depend.

Next in order to "the construction of a rail way between the waters of Juniata and Conemaugh, overcoming the summit by means of stationary engines, and self acting planes," attention was directed to the construction of a Macadamized turnpike of the best kind between the same points.

No examinations have been made *especially* in reference to this object during the past season, nor do any in addition to the surveys made by authority of the state in the summer of 1828, appear to be required. It results from these, that a tolerably direct route within the limit of one degree of graduation cannot be had between the points of contemplated connexion, and that whilst a rail road of the most advantageous description between Johnstown and Hollydaysburg will not much exceed thirty-eight miles, a Macadamized turnpike of the graduation above stated, between Johnstown and the head of the basin contemplated at Frankstown, (only two miles lower down) cannot fall much, if at all short of fifty.

It may sometimes be a question whether an inferior improvement of diminished length should not be preferred to one of superior order, but by which the distance between two points would be materially increased. When, however, the reverse is the case, and the trade to be accomodated is considerable, such a question we should think could very rarely arise. It will be proper, however, to institute a more precise comparison between the two kinds of improvement submitted.

Such a comparison involves three points: the first cost, the annual expense, and the *cost of transportation* on each species of improvement.

The estimates of Mr. Roberts (see Canal Documents, 1829, p. 216) give $506,145 34 cents, as the cost of a Macadamized road, 36 feet wide, on the shortest of the routes surveyed by him at a graduation of one degree. To this estimate remains to be added an allowance for contingencies and superintendence, so that the whole cost of such a road may be stated without danger of excess at, at least $550,000 between Johnstown and Frankstown, or at $528,000 between Johnstown and Hollydaysburg. This would leave a difference in cost between the Macadamized road and rail road of $408,000.

The difference in their annual expense is a matter of more difficult determination. Whilst the necessary expenses of a rail road are under any circumstances considerable, they increase in a very slight ratio with the increase of its trade. Those of a turnpike on the other hand increase in nearly the same ratio. It certainly will not be rating too highly the business which may be anticipated on the Allegheny portage to suppose that the annual repairs of a turnpike which would accommodate it, would at least equal those of repairs and renewal, (sitting aside the expenses of fixed and locomotive power,) on a rail road. If the supposition be correct it will remain only to compare the cost of transportation on the rail road and turnpike, with the first cost of the respective improvements.

If the following calculations are correct, (and no doubt is entertained that they are not too favorable to the rail road,) they shew that with a trade limited certainly in comparison with what may be anticipated, it would form notwithstanding its increased cost, much the most advisable connection.

Estimating the trade between Johnstown and Hollydaysburg at 30,000 tons going eastwardly; the trade going westwardly to be taken in return loads; and that transportation is effected during 250 days in the year. The average transportation eastwardly would be 120 tons per diem.

The average load on a horse, on a Macadamized turnpike, would be about twelve cwt. or 3-5ths of a ton. The time occupied in a trip 7 days, viz: 5 going and returning, and one at each point of termination for rest and loading.

Assuming these data 120x5-3x7=1400 horses would be required on a turnpike between Johnstown and Hollydaysburg; and estimating 5 horses a team, 280 drivers.

Five locomotive engines, forty horses, and thirty drivers and tenders, would more completely accommodate the same trade on a rail road. Presuming the wear and tear, and interest on turnpike and rail road wagons to be equal, and estimating the daily expense of a locomotive engine as equal to the interest on the cost, the wear and tear and expense of five horses, the saving in motive power would be equal to the wear and tear, expense and interest on the cost of 1335 horses and 250 drivers.

The former item of expense could scarcely be less than 30 cents per day per horse during the whole year, and an average of sixty cents per day for faithful and trusty drivers, would probably not exceed what their services would command.

Then 1335x80x250x60=550 dollars and 50 cents per day, or $200,932 50 per annum, would be the difference in the expense of transportation on a turnpike and Macadamized road.

Deducting from this amount the expense of fuel and attendance for five stationary engines, estimated at $2200, each ($1100) and of attendance at five self-acting planes, at $5000, we have still left in favour of the rail road a saving in the annual cost of transportation of $184,932 52 or a sum equal to nine times the interest on the difference in the first cost of the two improvements. The commonwealth may of course indemnify herself largely for any additional outlay she may make, and yet leave her citizens largely the gainers.

It will be seen at once, that with a trade greater than that on which the foregoing calculation is predicated, the balance in favour of the rail road would not only be greater, but increased in a still greater *ratio*, because the expenses on the rail road for fixed power and attendance at planes, would be very slightly increased, whilst those for repairs on the turnpike would increase in a ratio nearly correspondent with its increase of business.

It may not be out of place here to correct some misapprehensions which appear to exist in relation to the value of Macadamized roads as a means of transportation for merchandize and produce.

Travellers who have visited Great Britain, have been struck with the smoothness and easy graduation of the roads which traverse every portion of that highly improved country, and have returned to America enamoured of an improvement which owes its success rather to the circumstances under which it was introduced, than to the character of the improvement itself. It was long after canals had been constructed in every quarter of England, and the benefits of improved communication been extended into its more broken and mountainous districts by rail roads, that Macadamized roads were introduced. They were wanted as a means of accommodation for the greatly increased travelling which had been occasioned by an immensely extended internal and external commerce, and as such, have answered in an admirable degree the end for which they were desired. It would have been otherwise however, had they been made use of to effect the heavy transportation of the interior of the country, or to convey to the seaboard the products of its mines and manufactories, destined for foreign ports.

The small fragments of stone of which it is essential that the covering of Macadamized roads should consist, triturate very rapidly even under the light weights conveyed on them in England. Although it is extremely rare that any heavier vehicle than a stage coach is seen on an English turnpike, yet the annual expense of repairs on those which are much travelled, is estimated at 100*l.* sterling per mile.

Were the carriages used on them heavier, their capping would crush in pieces much more rapidly. The subject has been ingeniously illustrated by a comparison drawn from the effect of a large and small hammer. A pebble, it has been correctly observed, which would resist a severe blow from a hammer of two pounds, would be crushed into powder by one of moderate intensity from a hammer of four pounds.

The repairs of a Macadamized road, on which heavy wagons were used, would not only be extremely expensive from the excessive destruction of materials, but also from the constant labour which would be required to fill up the ruts in the road, which the wheels of such wagons would be continually wearing. No plan which has yet been fallen on will avoid this on a *good* road.

Large wheels, on a bad road, will avoid the deepening of ruts beyond a certain point, but if the materials of which the road is composed are small, they must yield under pressure, and the evil is only aggravated with large wheels, because such wheels cannot press *uniformly* on a rounded surface, which a Macadamized road should always have; and would cut more deeply at their corners than narrower wheels, which would have a more equal bearing.

It is proper to mention before leaving this subject, that good materials for the capping of a Macadamized road would be had with difficulty in the neighbourhood of either of the lines surveyed. The sand stone of the Allegheny is sometimes hard, but pulverizes easily under pressure, and bonds together but indifferently.

The third point to which attention was directed by the resolutions of the board, was "the suggestion of any other plan which might be deemed best calculated to accommodate trade."

Under this head it may be observed, that next to a good water communication, no plan is in general deemed more eligible for the accommodation of a large trade than a rail road, overcoming elevations by means of stationary power and inclined planes.

The profile of the line of rail road surveyed across the Allegheny mountain, may certainly be considered in a high degree favorable. More than two thirds of the distance between Johnstown and the summit level, as has been before observed, is well adapted to the use of locomotive power. On the remaining third, the ascending graduation is but small, and may be still further reduced by a slight increase in the rise of each lift, without any material accession of expense. East of the summit the profile of the rail road is not quite as favourable as west of it, but on the whole may not be considered ineligible for a trade preponderating in this direction.

The *plan* of the road is not more unfavourable than its profile. At two or three points it may be advisable to turn on a smaller radius than five hundred feet, but short and sudden curvatures will be but very seldom required.

Nature then has not shown herself churlish in the distribution of facilities for the contemplated connexion, and whilst she has maintained her barrier of partition between the waters of the Chesapeake and Mississippi, at the head of the Juniata, as at most other points, unbroken, she has presented perhaps as many facilities in this quarter for overcoming it by an improvement of the best description, as could reasonably have been expected.

On the other hand, she appears with equal energy and a boldness scarcely to be mistaken, to have denounced any plan of effecting this object by graduation. The wide and deep ravines with which both the eastern and western slopes of the Allegheny are torn, and which have been found so advantageous for the location of inclined planes, would have presented obstacles to a graded road of any kind, which could only have been overcome at an enormous expense, or avoided by a very great increase in the length of a line.

Under these circumstances, it is not hazarding too much to say, that no plan of improvement can be offered to the consideration of the board more eligible than that submitted under the first head of this report. It may, however, be a question whether a cheaper and simpler power cannot be substituted at inclined planes for that of steam, which has been contemplated in the annexed estimate.

Water power is available with but little fall, wherever a sufficiently large body can be commanded. It is not the less so where the reverse is the case, that is to say, where the volume of water though small, can be commanded from a very great elevation.

In but one case on the line of the rail road can a sufficiently large body of water be commanded at an inclined plane, to act in the ordinary manner on a water wheel. At the Big Bend of the Conemaugh, the whole stream may be had at a point half way down the plane, with the advantage of a head and fall of fifty feet, if necessary, affording, of course, for the inclined plane at this point, a greater amount of power than can in any contingency be wanted.

At the other inclined planes west of the summit, considerable streams of water could not be commanded, but at three of them, small and constant streams may be brought, without encountering any very serious expense, to the head or midway the planes. Two plans are deemed worthy of suggestion to the board by which the power they would afford may be made use of.

The first plan purposes a piston cylinder and crank, in all respects similar to those of the steam engine. The water to be conveyed by pipes with the advantage of the greatest head which can conveniently be had, and to be admitted alternately above and below the piston, (as steam from the boiler of a steam engine,) by means of a four-way-cock or valves; the latter to be opened and shut as in the steam engine, by means of a rod attached to the working beam. The principle on which this machinery (usually denominated the *water pressure engine*) is dependent for its power, it will be observed is the same as that of the hydrostatic press of Bramah, from which such important results have of late years been derived.

The second plan purposes the use of water in cisterns as a counterpoise to ascending weights, reducing the operation of ascending west as well as east of the summit, to that of self-acting planes.

The annexed drawing and specifications marked B, exhibit its details. It is proper to observe to the board, that this plan of overcoming elevations is claimed as an invention of the undersigned, and under a favourable impression of its applicability under many circumstances, was secured by patent, before he had the honour of being engaged in their service. He will, of course, be excused from any comparison of its advantages or disadvantages with those of the other plans submitted.

It may be desirable before closing this report, to present to the view of the board, some considerations which have governed in relation to the location of inclined planes, on the proposed rail road, which it has not been found convenient before to introduce.

Two points have been deemed to be of essential importance in the location of inclined planes. 1st that they should be straight, and that the line of the rail road should for a short distance from the head and foot of each plane, be in the same direction with the plane; and 2ndly, that the plane itself should either have an uniform inclination with the horizon, or an inclination gradually diminishing between the head and foot of the plane. On a plane to any extent curved in *its plan*, a greater loss of power and wear and tear of cable and rope will always be sustained, than on a straight plane, and without a stage of some extent at the head of the plane in the same direction with the plane, a very extensive business cannot be accommodated; and should the plane be so far curved, as to prevent the manager at the head of the plane from embracing its whole extent under his view, the operation of raising and lowering trains must be conducted by signals, and often disadvantageously.

On planes on which power is to be applied, an inclination slightly diminishing towards the foot of the plane is most desirable; on self-acting planes, (where the fullest useful effect of the gravity of descending bodies is desired,) the most advisable profile is an approximation to the cycloyd. It is in either case a disadvantageous feature, if the plane becomes steeper towards its foot. In the one case, the engine at the commencement of its labor, is compelled to exert a greater force than is afterwards required. In the other, a descending train of wagons may acquire in consequence of its increased stress, combined with its accelerating force, a momentum not to be controlled without difficulty by a brake, and attended with much hazard.

It was farther an object in the case under consideration, to reduce the number of planes as far as practicable. Such a reduction was peculiarly recommended by the saving of time in transportation which it insured, and the superior simplicity of any system of transportation which might be adopted on the completion of the work.

The bold outlines of the country over which the rail road has been located, did not admit of prescribing to it too many conditions.—Of course in complying with those which were deemed essential, secondary considerations have been occasionally waived.

The accompanying volume of profiles marked C. presents a view of the ground which has been selected for the different planes east and west of the summit. and the general inclination recommended at each plane. This of course does not correspond in all cases with that which looking only to the trade and its direction, would be deemed the most advisable, but deviates as little from such a profile as a due regard to circumstances would permit. The great essentials in the location of planes above explained, it has been found practicable with one exception to observe. Plane No. 2 east has a curvature in its course corresponding to a versed sine of 40 feet on a chord of 672 feet. It may be proper to mention also, that at plane No. 5, west. it will be necessary to arrive on, and leave the foot of the plane by a turning platform.

It will be observed that the elevation overcome, and angle of inclination adopted at the different lifts, differ very materially.—These differences would be compensated on the execution of the work, by adopting at each point machinery of suitable weight and power. The proportions allowed in the estimate are deemed a sufficient approximation for the purpose for which they are used, but a nice calculation of strength for each portion of the machinery employed, will of course be requisite, in order to avoid on the one hand the loss of power which would be sustained by the use of cables and other fixtures unnecessarily cumbrous, or the disastrous consequences which might result from the want of a due degree of strength in their proportions.

In addition to the documents above referred to, two volumes of topographical sketches, and two field books, presenting all farther information on the subject, believed to be material, are herewith presented to the board.

All which is respectfully submitted.
MONCURE ROBINSON, *Civil Engineer.*
November 21*st*, 1829.

No. 2.

Estimated cost of constructing the Portage Rail Road, &c.

Average expense of a mile of Rail Road, adapted to Horse-power

2560 stone blocks, embeded and drilled, at 75 cents,	$1,920 00
Same number of wooden blocks, (white oak or locust, 12 inches square, and trunnelled to stones, at 40 cents,	1,024 00
Same number of wedges or keys, at 5 cents,	128 00
21,824 lineal feet of wooden rails, 6½ by 10 inches, allowing 3⅓ per cent. for waste, at 4 cents,	872 96
21,200 feet of iron rails, 2 inches by ½ inch, weight 3⅓ lbs. per foot, 3155 tons, at $75 per ton,	2,366 25

Four inch spikes,	191 25
Strips of iron or zinc under ends of rails,	36 54
Placing, dressing, and keying wooden rails of 320 lineal perches of railway, at 60 cents per perch,	192 00
Putting down and spiking 320 poles of iron rails, at 70 cents,	224 00
Stoning horse path, 640 cubic yards of small broken stone, at 75 cents per yard,	480 00
	$7,435 00

Average expense of a mile of Rail Road adapted to Locomotive power.

3018 stone blocks, (cubes of 2 feet) embedded, drilled, and plugged, for the reception of bolts, at 75 cents.	$2,263 50
1510 sills of locust or white oak, 9 feet long, 12 by 12, sawed for the reception of rails and bolted, at 80 cents,	1,208 00
3018 bolts, 20 inches long, by one inch in diameter, at 30 cents,	905 40
3018 keys, at 5 cents,	150 90
21,824 lineal feet of wooden rails, 8 by 12, at 6 cents,	1,309 44
21,200 lineal feet of iron rails, cross section equal to 1.41 inches, weight 44 3-10ths tons, at $75,	3,322 50
Wrought iron spikes, 5½ inches long,	225 00
Fixtures at ends of rails,	53 26
Placing, dressing, and keying wooden rails of 320 perches of railway, at 80 cents per perch,	256 00
Putting down and spiking 320 poles of iron rails, at same rate,	256 00
	$9,950 00

SECTION 1st.

East division of Rail Road, from SBM No. 1 *to No.* 40, 363.3 *poles.*

This section comprises the tunnel and deep cutting at each end. The former would be perforated through sand stone of different degrees of hardness, and in strata of irregular thickness. Some slate and thin strata of bituminous coal would also be met with.

It would be advisable to arch the whole length of the tunnel, but lining would not often be required. The arch proposed would be a segment of thirty-five feet radius, or have a spring of 1 46-100 feet on a chord of 20 feet.

A less expensive tunnel might be constructed on a course S. 56° E. from No. 3. But on this line an additional lift would be added east of the summit, and the line of the rail road lengthened about 300 feet.

Grubbing and clearing,		$870 00
7044 yards excavation, at 10 cents,		704 40
Deepening bed of run and culvert, at SBM 1,		400 00
1850 yards rock, at 40 cents,		740 00
7074 yards do at 90 cents,		6,366 60
Tunnel, 5280 feet long, cross section averaging 13 feet by 20, excavation 9 6-10ths cubic yards per lineal foot, 50,688 cubic yards, at $2 40 per yard,	121,651 20	
Excavation of shafts and connexions with tunnel, 1370 cubic yards, at $3,	4,110 00	
Raising water and draining,	7,350 00	
Centering,	400 00	
Arch voiessoirs dressed to good beds and joints, and laid in water proof cement, 1½ cubic yards per running foot, 7920 cubic yards, at $3 50,	27,720 00	
Masonry at entrances to tunnel, 180 cubic yards, at $3	540 00	
Occasional lining in tunnel,	3,800 00	
	$165,571 20	165,571 20
133 poles of railway superstructure, at $7,435 per mile,		509 02
350 poles of railway, exclusive of wooden and stone blocks and wedges, (not wanted,)		4,772 03
Bolts to attach rails to rock bottom of tunnel, and of deep cutting at entrances,		1,120 00
Cost of section,		$180,053 25

SECTION 2d.

From No. 40 to foot of plane No. 2 east 382. 2 poles.

This section comprises self-acting planes No. 1 and 2, east of the summit and the intervening stage. The planes would be reciprocating, this plan being recommended in plane No. 1 east by its superior economy, and in plane No. 2 by the curvature, which is unavoidable, in the plan of the plane. Hempen cables and vertically revolving drums, will in consequence be required on each plane.

The plane formation of No 1 will be effected between stations 45 and 53 by deep cutting; between 58 and 64 by walling of substantial and massive masonry. The amount of the last may be diminished one half, by bringing the two tracks into one, on the lower half of the plane. The estimate is predicated on the supposition that this plan (which under all the circumstances of the case is deemed the most eligible), will be adopted.

The course of the northern turnpike will be changed, so as to pass it under the masonry formation of the plane at station 58, and the north branch of Blair's gap run will be passed in like manner by an arch under the plane between stations 62 and 63.

The foot of plane No. 1 will be located about 68 feet beyond station 66. Between this point and No. 72, a roadway will be formed by excavation, occasionally light, but consisting often of loose rock, except at one point, where an embankment 14 feet high and culvert will be required. Beyond station 72, some heavy embankment will be requisite; and a ravine 42 feet lower than the line of the rail way, is passed between stations 73 and 74; a nine foot arch will be necessary at this place.

The plane formation of No. 2 will consist of sidelong excavation, presenting no material difficulty as far as station 87. Between this point and No. 93, the plane will be supported by a wall of considerable batter, resting on the masses of stone which form the foot of the mountain slope.

Grubbing and clearing,		$600 00
INCLINED PLANE, No. 1.		
3194 yards excavation at 10 cents,	$319 40	
1099 yards rock at 30 cents,	329 70	
1097 yards do at 90 cents,	1,797 30	
5,366½ yards well bonded masonry at $1,	5,366 50	
Deepening channel of creek and filling in for platform at foot of plane,	250 00	
Superstructure; wooden and iron rails, estimated as for locomotive engines,	2,980 00	
126 friction rollers, weight 30 lbs, delivered and placed at $1 35,	170 10	
252 wooden bents for supports to rollers at 25 cents each,	63 00	
4050 feet of patent 3 inch cable, weight 3 2-10 lbs per ft. delivered and placed at 14 cts.,	1,814 40	
Drum and brake and tenement for tender,	1,100 00	
	$14,190 40	
		14,190 40
Changing line of turnpike so as to pass it under plane at station 58,		950 00
Next graduated stage 171.3 poles,		
9697 yards excavation averaged at 17 cents,		1,648 49
17,100 yards embankment at 15 cents,		2,565 00

Sloping culvert of 8 feet span,		850 00
do. 4 do.		200 00
Excavation 2340 yards for embankment near head of plane No. 2, at 8 cents per yard,		187 20
4 drains at $40 each.		160 00
Superstructure of 177.5 poles of railway at $7,435 per mile,		4124 10

INCLINED PLANE, No. 2.

5278 yards excavation at 12 cents,	633 36	
1120 do rock at 40 cents,	448 00	
1080 do walling at 50 cents,	540 00	
860 do filling at 15 cents.	129 90	
Superstructure; estimated as for locomotive engines,	2,370 00	
104 friction rollers, at $1 35,	140 40	
208 bents for supports, at 25 cents	52 00	
2800 feet of patent 3 inch cable weighing 32 lbs. per foot, at 14 cents,	1,254 40	
Drum, brake and tenement,	1,100 00	
	$6,668 06	
		$6,668 06
		$32,143 25

SECTION No. 3.

From foot of plane No. 2 to No. 123, 272.8 poles.

The first 350 feet of roadway of this section will be formed by walling and filling, the line passing along a slope covered with large fragments of stone suitable for building. From station 96 the mountain slope becomes more gentle, and a roadway between this station and No. 100, would be formed by removing and arranging fragments of loose stone. Beyond No. 100 the excavation (generally light) presents some loose rock, and a few large masses, and at No. 103 a culvert of five feet span and a ten foot embankment will be required.

The head of inclined plane No. 3 east, is located 137 feet beyond station 104, and its foot at the end of the section. This plane will be formed by walling and filling, where the profile of the ground is less elevated than that of the plane. The excavation at other points will consist generally of loose stone, but near the foot of the plane of gravel intermixed with clay.

The line of this plane will be straight, and its gradation uniform. Under these circumstances a double track and endless chain is preferred to the reciprocating plan adopted for planes Nos. 1 and 2.

Grubbing and clearing,	$400 00
1442 yards of walling, at 40 cents,	576 80
6890 yards of filling, at 12 cents,	826 80
1850 yards excavation, (loose rock,) at 20 cents,	370 00
1562 do do at 10 cents,	156 20
Throwing off some large surface rock,	40 00
Culvert of 6 feet span at station 103,	220 00
2285 yards of embankment, at 14 cents,	319 90
4 drains at $40,	160 00
132 poles of superstructure, at $7,435 per mile,	3, 31 63

INCLINED PLANE No. 3.

2529 yards excavation, averaged at 18 cents,	$455 22	
6338 do do at 15 cents,	950 70	
1090 yards walling, at 50 cents,	545 00	
3006 do filling, at 15 cents,	450 90	
Superstructure,	3,744 00	
200 friction rollers, at $1 35,	270 00	
530 bents, at 25 cents,	132 50	
4200 feet of ¾ inch cable, weight 5 lb. per foot, at 13 cents,	2,730 00	
Two horizontal wheels and appendages and brake,	850 00	
Tenement for tender,	400 00	
	$10,528 32	10,528 32
		$17,129 65

SECTION 4th.

From No. 123 to foot of Plane No. 4, East, 566 poles.

The line in the 1st 700 feet of this section crosses the west branch of Blair's gap run, by an embankment averaging 8 feet in height. It afterwards passes along steep ground, varying between 20° and 40° of acclivity to No 141. The slope of the ground at this station becomes more gentle and the line passes over very favourable ground to No 146. In the next 550 feet some rock excavation will be encountered, and afterwards an embankment across a ravine forty feet below our line. Beyond this embankment there will be some additional rock excavation, and at the head of plane No. 4, an embankment 280 feet long and 8 feet high.

The head of plane No. 4, is located 105 feet beyond No. 157. Its formation will consist of alternate excavation and embankment between stations 164 and 167 rock will be met with.

This plane like the last, has an uniform graduation, and will be furnished with a chain cable and horizontal wheels.

Grubbing and clearing,		$600 00
10,118 yards excavation, averaged at 10 cents,		1,011 80
11,036 do do at 14 cents,		1,545 04
1240 do rock, at 40 cents,		496 00
4200 yards embankment, at 13 cents,		546 00
30,313 do do at 16 cents,		4,802 08
Wall and culvert between No. 149 and station A.		
1050 yards of dry wall, at $1,	$1,050 00	
250 do of masonry, at $2 30,	575 00	
	$1,625 00	1,625 00
Six drains, at $40,		240 00
439 poles of superstructure, at $7.433 per mile,		10,199 89

INCLINED PLANE No. 4.

Excavation and embankment 7906 cubic yards, at 16 cents.	1,264 96	
Do do 1479 yards rock, at 40 cents,	591 60	
Superstructure,	8,956 00	
210 friction rollers, at $1 35,	283 50	
420 bents for supports, at 25 cents,	105 00	
4400 feet of ¾ cable, weighing 22,000 lbs. at 13 cents,	2,860 00	
Horizontal wheels, fixtures and brake,	850 00	
Tenement for tender,	400 00	
	$10,311 06	10,311 06
		$31,376 87

SECTION 5th.

From the foot of Plane No. 4 to No. 223, 684 $\frac{7}{10}$ poles.

The line in the beginning of this section encounters some embankment. It afterwards passes along ground generally steep but favourable as far as station 201. Immediately beyond this station it crosses a ravine, forty-two feet lower than the graduation. then encounters some slate rock excavation and a second ravine, after which it continues on favorable ground to within 600 feet of the head of plane No. 5.

The surface at the head of this plane must be embanked about 5 feet, and the first 120 feet of the plane will be brought to a suitable graduation by embankment. The necessary excavation in grading the plane will vary between 0 and 9 feet in depth, of which a considerable portion will be slate.

Grubbing and clearing,		$600 00
2660 yards excavation, at 8 cents,		212 80
19,216 do do at 10 cents,		1,921 60
9677 do do at 13 cents,		1.258 01
1650 do slate, at 30 cents,		495 00
26224 yards embankment, averaged at 13 cents,		3,409 12
2 culverts, one at $750 and one at $450,		1,200 00
8 drains at $40,		320 00
Superstructure of 600.5 poles of rail way, at $7435 per mile		13,952 24
INCLINED PLANE, No. 5.		
5814 yards excavation, at 14 cents,	813 96	
1122 yards do slate, at 35 cents,	392 70	
Superstructure,	2,619 41	
140 friction rollers, at $1 35,	189 00	
280 supports, at 25 cents,	70 00	
3000 feet of patent ¾ cable, weight 15,000 lbs. at 13 cents,	1,950 00	
Horizontal wheels and brake,	850 00	
Tenement for Tender,	400 00	
	$7.285 07	7.285 07
		$30.653 84

SECTION 6th.

From No. 223 *to No.* 308—1302. 5 *poles.*

The uniform graduation of $\frac{9}{100}$ of a foot per ten feet from the termination of the platform at the foot of inclined plane, No. 5, to a point 93 feet beyond the Hollydaysburg bridge, makes this section very expensive ; high embankments being necessary at three points between the foot of the inclined plane and John Walker's tavern, and a very heavy embankment between Walker's and the bridge. It is deemed important to sustain an uniform graduation even at a very increased cost, because the descending graduation of the section will be under any circumstances much greater than desirable. The other items of expense of the section consist in some rock excavation and deep cutting, an arch to pass the road from Newry to Duncan's, a bridge at Hollydaysburg and culverts at several points on the route.

The race of Robert Gardner's fulling mill is passed between stations 223 and 224, under the platform at the foot of the plane. The line crosses the Blairs gap branch in 227, 228, and afterwards passes on the north side of the creek to station 231, where it recrosses. It will be advisable to change the course of the stream in this distance, so as to retain the creek to the left of the rail road, In this case a culvert *only* will be required at station 231, instead of a bridge.

From No. 281 to Hollydaysburg, the turnpike will be occupied by the embankment for the rail road, and a new road must be constructed which it will be advisable to take across the Beaver dam branch, some distance above the present crossing point; an allowance is made in the estimate for this item of expense.

The last 1538 feet of the rail road will be parallel to the line of the proposed basin, between which and the water there will be an interval of 240 feet for warehouses and depots.

Grubbing and clearing,		$200 00
First 1967 feet,		
28,824 yards embankment, at 18 cents,	5,188 32	
Culvert to pass Gardner's mill race, laid in water proof cement,	300 00	
One between stations 230 and 231,	400 00	
	$5,888 32	
		5,888 32
Next 1237 feet,		
3711 yards excavation, at 8 cents,	296 88	
Embankment, (between 237 and 249) 2388 feet long, 70,386.8 cubic yards, at 20 cents,	14,077 36	
Arch to pass Newry road,	1,650 00	
Culvert between 245 and 246,	400 00	
	$16,424 24	
		16,424 24
Next 561 feet.		
1851 yards rock excavation (deep cut near Duncan's) at 40 cents,	740 40	
6441 yards excavation, at 12 cents,	772 92	
	$1,513 32	
		1,513 32
Next 3615 feet, ending near J. Walters.		
21,781 cubic yards excavation, averaged at 9 cents,	1,960 29	
500 cubic yards rock, at 35 cents,	175 00	
	$2,135 29	
		2,135 29
Embankment near J. Walters.		
908 feet long, and averaging 7 feet high, 84,665 yards, at 15 cents,	1,523 97	
4 foot drain at station 269,	150 00	
	$1,673 97	
		1,673 96

Next 1656 feet.		
Excavation 1446 cubic yards, at 8 cents,	115 68	
Do 3254 do at 16 cents,	520 64	
2 four feet drains,	300 00	
	936 32	
		936 32
Between Walker's tavern and Hollydaysburg, excavation to avoid curving too suddenly.		
1900 cubic yards slate rock excavation, at 35 cents per yard,	665 00	
Other excavation, 1952 cubic yards, at 12 cents,	234 24	
138,157 cubic yards embankment, at 20 cents,	27,631 40	
	$28,530 64	
		28,530 64
Hollydaysburg bridge, 93 feet long, (stone abutments 13 feet high and truss superstructure,)		3,000 00
Thence to No. 308 at end of section.		
Excavation 1650 yards shelly limestone rock, at 35 cents,	577 50	
Earth excavation 9585 cubic yards, at 10 cents,	958 50	
	$1,536 00	
		1,536 00
Changing turnpike and new turnpike bridge,		2,500 00
10 small drains on different parts of section, at $40,		400 00
Superstructure of 1302.5 poles of railway, at $7,435 per mile,		30,262 77
		$95,000 87

SUMMARY.

Section 1st	$180,053 25
Do 2d	32,143 25
Do 3d	17,129 65
Do 4th	31,376 87
Do 5th	30,653 84
Do 6th	95,000 87
	386,357 73
Superintendence and contingencies 7 per cent.	27,045 01
Whole cost of eastern division of rail road,	$413,402 74

SECTION 1st.—WEST.

From SBM No. 1, to the head of Inclined Plane No 2, 1375 poles.

The first 588 pales of the rail road in this section passes over ground highly favourable, with the exception of some cutting 12 feet deep. At the end of this distance, inclined plane No 1 is located, by which the line of the rail road is lowered one hundred and forty feet. The next mile of the section is a good deal torn with ravines, and the clearing will be heavy. The remainder of the section will be favourable.

Adams's run, which is crossed immediately below the foot of plane No. 1, would furnish an adequate supply of water for a steam engine, at an elevation much higher than our crossing point. It would probably, however, be necessary to pump it a part of the who'e elevation overcome by the place.

The inclination of plane No. 1 west, is the most gentle on the line of the rail road. The ascent 140 feet being overcome in a distance of 2200. The slope increases gradually towards the head of the plane.

The estimate for the machinery used on this plane is for a drum revolving vertically, winding a reciprocating rope, and a steam engine of sixty horse power, acting in the ordinary manner by a crank.

The line of the railway in the first 4268 feet of the section is level; the graduation thence to the head of plane No. 1 is 16-1000ths. of a foot per ten feet. And from the foot of plane No. 1, to the end of the section 22-1000ths per ten feet.

Grubbing and clearing,		$1,700 00
Road way formation of first 200 poles.		
9879 cubic yards excavation, at 8 cents,	790 32	
493 cubic yards loose rock, at 25 cents,	123 25	
3 drains, at $40 each,	120 00	
2 small bridges, at $100 each,	200 00	
	$1 233 57	1,233 57
Next 60 poles, cutting through a spur 15,625 yards, at 8 cents,		1,250 00
Next 328 poles.		
19064 cubic yards excavation and embankments, averaged at 9 cents,	1,715 76	
4 drains, at $40 each,	160 00	
	1,875 76	1,875 76

Inclined plane No. 1, west.		
12,723 yards excavation, including ditching on upper side of plane, at 10 cents,	1,272 80	
4909 yards embankment, at 9 cents,	441 81	
Superstructure estimated as for locomotive engines,	4,146 00	
Steam engine, putting up, and supplying with water,	7,500 00	
Drum and brake, and gearing,	950 00	
4600 feet of patent 2 inch cable, weight 6,440 lbs. at 14 cents,	901 60	
148 friction rollers, at $1 35,	199 80	
296 bents for supports, at 25 cents,	74 00	
Tenement,	400 00	
	$15 886 01	
		15,886 01
Last 654 poles of section.		
4700 yards embankment, at Adams' run, at 10 cents per yard,	470 00	
Deepening stream and bridge,	220 00	
8692 cubic yards excavation clay loam and gravel, at 7 cents,	608 44	
16,242 cubic yards excavation clay, gravel and loose stone, at 9 cents,	1,461 78	
800 cubic yards rock, at 60 cents,	480 00	
1900 cubic yards rock (loose blocks,) at 25 cents,	475 00	
4 culverts, at $200, and 8 drains, at $40,	1,120 00	
	$4,835 22	
		4,835 22
Superstructure of 1242 poles of railway, at $7435 per mile,		28,857 09
		$55,637 65

SECTION 2d.

From head of Inclined Plane No. 2 *to No.* 214, 1376 *poles.*

This section presents very considerable difficulties of various kinds. The formation of plane No. 2 at the beginning of the section, involves much walling and some rock excavation, and at 272 poles from the commencement of the section, the line passes for about 1850 feet along very steep and rocky slopes, where a roadway must be formed by benching off the rock and walling. Limestone creek is passed within a short distance of this difficult ground, and must be passed by a 10 foot arch and an embankment 650 feet long, and 30 feet high at its highest point.

Between the end of this embankment and station 147, a distance of 148 poles farther, the line presents no other difficulties than those arising from some loose rock, occasionally large and heavy clearing.

Seventy-eight feet beyond this station, the head of plane No. 3, is located. In this as in plane No 2, the line of the plane for a considerable distance will be attained by walling.

Between the foot of plane No. 3 and the end of the section, the line passes over very irregular ground, crossing the Bens' creek valley, by an embankment and bridge over the stream, it afterwards encounters at several points, cutting and filling, and at one point, a cut 550 feet long and 22 feet deep at its apex in curving through a rocky point on a 500 feet radius.

The line of plane No. 4 west, which is located at the end of this section, would be improved by giving it somewhat more westing. The estimates for this and the two preceding planes, suppose the same description of machinery as for plane No. 1.

The graduation from the foot of plane No. 2, to the head of plane No. 3, is 15-1000ths per 10 feet, between the foot of plane No. 3 and the head of plane No. 4, 11-1000ths per ten feet.

Grubbing and clearing,		$1,700 00
Inclined plane No. 2 West.		
2640 cubic yards massive masonry including foundations and rock excavation in line of plane at $1 30 per yard,	$3,432 00	
1200 cubic yards excavation at 12 cents per yard,	144 00	
Superstructure,	1,434 00	
Steam engine including putting up and supplying with water,	7,500 00	
Drum and brake and gearing.	950 00	
1720 feet of 3 inch cable, weight 5504 lbs at 14 cents,	770 56	
76 friction rollers at $1 35,	102 60	
152 supports at 25 cents,	88 00	
Tenement for tender,	400 00	
	14,771 16	14,771 16

Road way formation between the foot of plane No. 2, and head of plane No 3.	
6400 cubic yards embankment at Bear Rock run at 10 cents,	640 00
Bridge at Bear Rock run,	250 00
4315 yards excavation at 10 cents,	431 50
7440 do rock at 40 cents,	2,976 00
2500 do do at 25 cents,	625 00
4550 cubic yards walling at 50 cents,	2,275 00

30,200 cubic yards embankment at Limestone run at 12 cents,	3,624 00	
10 foot arch at Limestone run,	800 00	
13,600 cubic yards excavation, generally loose stone at 16 cents,	2,176 00	
10 drains at $40,	400 00	
	14,197 50	
		14,197 50
Inclined plane No. 3 west.		
3750 cubic yards massive masonry, including foundations and rock excavations, at $1 30 per yard,	4,875 00	
Superstructure,	1,528 00	
Steam engine and supplying with water,	7,500 00	
Drum and brake, and gearing,	950 00	
1830 feet of 3 inch cable, weight 5856 lbs. at 14 cents per lb.,	819 84	
80 friction rollers at $1 35,	108 00	
160 supports at 25 cents,	40 00	
Tenement for tender,	400 00	
	16,220 84	
		16,220 84
Roadway formation between foot of plane and station 174.		
6400 cubic yards embankment at Ben's creek at 16 cents,	1,024 00	
Bridge at Ben's creek,	300 00	
2570 cubic yards excavation loose and solid rock, averaged at 28 cents,	719 60	
6440 cubic yards excavation at 10 cents,	644 00	
4 drains at $40 each,	160 00	
	2,847 60	
		2,847 60
Cutting through a spur between stations 174 and 179.		
4113 cubic yards rock at 90 cents,	3,701 70	
10,920 do earth at 10 cents,	1,092 00	
	4,793 70	
		4,793 70
Thence to head of plane No. 4 west.		
13,760 cubic yards excavation at 10 cents,	1,376 00	
1700 cubic yards embankment at 11 cents,	187 00	
1 culvert $200, 3 drains at $40,	320 00	
	1,883 00	
		1,883 00

Inclined plane, No. 4 West.

13,122 cubic yards excavation and embankment averaged at 15 cents	1,968 30
4 foot culvert and walling	[illegible] 00
Superstructure,	[illegible]
Steam engine and supplying with [illegible]	[illegible]
Drum and brake and [illegible]	[illegible]
3600 feet of [illegible] at 14 cents.	[illegible]
114 friction rollers [illegible]	[illegible]
228 supports at 25 [illegible]	[illegible]
Tenement for [illegible]	[illegible]
Superstructure of 11[illegible] at $7,[illegible]6 per [illegible]	[illegible]70 69
	$[illegible]9,072 69

SECTION 3d.

From No. 214 *to No.* 335 1728. 64 100 *poles*.

The line in this section crosses the Conemaugh at a very favourable point 2424 feet from the beginning of the section, and then continues along the bold shore on the north side of the Conemaugh, encountering in the first mile after crossing, much rock excavation and walling. It afterwards passes along ground generally favourable, as far as the Ebensburg branch, which is crossed between stations 282 and 283, 870 perches beyond the crossing of the Conemaugh. From this point to within 80 perches of the end of the section, the line passes along ground generally broken and often rocky and steep, but presenting at no one point any serious impediment. Near the end of the section some cutting 10 or 12 feet deep will be encountered in order to diminish a very sudden curve around a point of land near George Pringles.

It will perhaps be advisable to take the line on the left side of the Conemaugh until opposite No. 249 of the line traced, and to cross at this point in place of crossing between stations 225 and 226. The point of crossing would not be so favourable, and two extra bridges would be required across Trout run and Ephraim's run, but the whole cost of roadway formation would be diminished.

On this and the following sections of the rail road, the estimate is made with a view to locomotive power which it is deemed advisable to make use of on them. The graduation adopted for the section, with the exception of the last 68 poles is $\frac{24}{1000}$ per ten feet. On this portion of the section and the first part of the following, the graduation would be reduced to $\frac{12}{1000}$ per 10 feet, in consequence of the small fall of the Conemaugh in this distance.

Grubbing and clearing,		$1,500 00
Roadway formation of 1st 147 poles to crossing of Conemaugh.		
4200 cubic yards, removal of sods and muck on swampy ground, between foot of plane and Beaver dam creek, at 8 cents per yard	336 00	
5400 cubic yards embankment on do. at 9 cents,	486 00	
Bridge across Beaver dam creek,	200 00	
7050 cubic yards embankment between Beaver dam creek and Conemaugh, at 10 cents,	705 00	
	$1,727 00	1,727 00
Bridge across the Conemaugh,		720 00
Roadway formation thence to crossing north branch.		
7100 cubic yards embankment, at 10 cents,	710 00	
24,640 do at 14 cents,	3,449 60	
23,481 do excavation, at 8 cents,	1,878 48	
2500 do red slate, at 30 cents,	750 00	
16,250 cubic yards walling including foundations and quarrying at 90 cents,	14,625 00	
20,300 cubic yards filling, at 10 cents,	2,030 00	
5 culverts, at $200 each,	1,000 00	
10 drains, at $40 each,	400 00	
	24,843 08	24,843 08
Bridge across Ebensburg or North Branch,		800 00
Between the crossing of the North Branch and end of section.		
8,600 cubic yards embankment, at 12 cents,	1,032 00	
12,727 do do at 8 cents,	1,018 16	
11,164 cubic yards excavation and embankment, at 9 cents,	1,004 76	
10,831 do excavation at 7 cents,	758 17	
7200 do do at 10 cents,	720 00	
21,916 do at 6 cents,	1,314 96	
8924 do excavation slate rock, at 25 cents,	2,231 00	
1760 do do slope wall, at 60 cents,	1,056 00	
Cutting through point at Pringles.		
1800 cubic yards rock, at 90 cents,	1,620 00	
6763 do. earth, at 10 o'clock,	676 30	

Embankment beyond 2480 cubic yards, at 10 cents,	248 00	
6 culverts, at $180 each,	1,080 00	
10 drains, at $40 each,	400 00	
	$13,159 55	13,159 55
Superstructure of 1728.64 poles of rail way, adapted to locomotive power, at $9,950 per mile,		53,749 90
		$96,499 53

SECTION 4th.

From Station 355 to Station 438, 1432 poles long.

The Conemaugh valley in this section, becomes much more confined than heretofore, and the line of the rail way passing along its northern slope is taken often over steep and broken ground, but which is only in two or three cases abrubt. Much loose rock will be met with throughout the section, and a good deal of solid rock must be excavated in the last mile, before reaching, and across the *big bend* of the Conemaugh.

At this place the line of the rail way is lowered by an inclined plane 91½ feet, the head of the plane being located at station 431.

The graduation of the beginning of this section is $\frac{17}{1000}$ per ten feet. It changes at the end of 235 poles to $\frac{28}{1000}$ per ten feet which continues the graduation of the section to the head of the inclined plane.

Grubbing and clearing,		$1,500 00
First 266 poles of road way formation, to crossing of Spruce run at Croyles.		
15,614 cubic yards excavation, at 9 cents,	1,405 26	
3241 do do loose stone at 20 cents,	648 20	
Double culvert at Spruce run,	300 00	
5 drains at $50 each,	250 00	
	$2,603 46	2,603 46
Next 613 poles to station 400.		
39,488 cubic yards excavation, at 8 cents,	3,159 04	
6904 do do loose stone, at 20 cents,	1,380 80	
400 do do rock, at 50 cents,	200 00	
2120 do do embankment, at 10 cents,	212 00	

5260 do do slope wall including quarrying, at 60 cents,	3,156 00	
One bridge, at $450 and one at $300,	750 00	
2 culverts, at $200 each,	400 00	
9 drains at $40 each,	360 00	
	$9.617 84	9,617 84
Between station 400, and head of inclined plane No. 5, west		
32,847 cubic yards excavation, at 9 cents.	2,956 23	
10,500 cubic yards embankment, at 10 cents,	1,050 00	
7362 cubic yards rock excavation, at 30 cents,	2,208 60	
4089 cubic yards do at 75 cents.	3,066 75	
Two culverts, one at $200, and one (at Ulizel's spring run,) at $350,	550 00	
4 drains, at $40 each,	160 00	
	$9.991 58	9,991 58
Inclined plane No 5 West.		
830 cubic yards rock excavation at 60 cents,	498 00	
255 cubic yards walling at 50 cents,	127 50	
Benching for foundation of wall,	150 00	
Superstructure,	500 00	
Steam engine, and supplying with water,	5,500 00	
Drum, brake and gearing,	850 00	
22 friction rollers at $1 35,	29 70	
620 feet of 3 inch cable, weight 1984 lbs. at 14 cents,	277 76	
Tenement for tender,	400 00	
	$8,332 96	8,332 96
Superstructure of 1421 poles of double railway at 9,950 per mile,		44,184 22
		$76,230 06

SECTION 5th.

From foot of inclined plane No. 5 to No. 528 1100 *poles.*

The line crosses the Conemaugh at the beginning of this section and recrosses within 85 poles of its termination. The first crossing is rendered necessary by the particular direction which an inclined plane at the big bend *must* necessarily take. The second crossing avoids a long stretch of very difficult ground, on the south side of the Conemaugh.

At several points on this section, the line is traced on bold ground falling steep to the river. The remainder of the section presents only ordinary difficulties.

The graduation for the first 466 poles of this section is 41-1000 per 10 feet. For the remainder of the section an uniform graduation of 48-1000ths per ten feet will be the most eligible.

Grubbing and clearing,		$1,250 00
Roadway formation 1st 451 poles to station 470.		
Bridge across Conemaugh 130 feet long,	23,300 00	
3400 cubic yards embankment at 12 cts.,	408 00	
18.946 cubic yards excavation at 10 cts,	1,894 60	
Forming 73 poles of roadway at $2.	146 00	
5946 cubic yards loose rock excavation at 20 cents,	1,189 20	
6 drains at $40	240 00	
	36,377 80	
		6,877 80
From station 470 to end of section.		
10.041 cubic yards excavation at 8 cents,	803 28	
35,014 do do at 10 cents,	3,501 40	
8,394 cubic yards rock excavation, principally loose at 25 cents,	2,098 50	
5263 cubic yards slope wall at 30 cents.	1,578 90	
8311 do embankment at 9 cents,	747 99	
Bridge across Conemaugh,	2,500 00	
8 drains at $40,	320 00	
	11,550 07	
		11,550 07
Superstructure of 1100 poles of rail way at $9950 per mile,		34,204 70
		$83,362 57

SECTION 6th.

From No. 528 to No. 605, 989 Poles.

In this section the line of the rail road crosses the Conemaugh three times, once at a point peculiarly favourable, 154 poles from the point of commencement, a second time at station 563, three hundred and eight poles farther: and again within one hundred and fifty poles of the end of the section. The line by these crossings is placed on the best ground which the valley of the Conemaugh affords, and is much more direct than a line on either side of the river would be. This is, nevertheless, more circuitous than any other portion of the rail road.

The difficulties in the roadway formation of this section, consist principally in the bridges and embankments at the crossing points, the removal of loose rock on different parts of the section, and some cutting between the first and second crossings of the river in diminishing the convexity of a part of the line.

The graduation throughout this section is 48-1000ths per ten feet.

Grubbing and clearing,	$1,050 00
42,124 cubic yards excavation, at 9 cents,	3,791 16
20,968 cubic yards embankment, at 12 cents,	2,516 16
3,693 cubic yards excavation, loose rock, at 20 cents,	738 60
2 bridges at $2100 and 1 at $1300,	5,500 00
13 drains at $40	520 00
Superstructure of 989 poles of rail way, at $9950 per mile,	30,751 72
	$44,867 64

SECTION 7th.

From No. 605 *to No.* 671 *near Johnstown,* 811 43 *poles.*

The line to the head of the proposed basin, about 1300 feet from the end of this section passes either along the steep banks of the Conemaugh, or over very broken ground. On this last, much extra excavation will be incurred in straitening the line traced, and protection walls will be necessary at points where the steep banks of the river are impinged by its current. Near the end of the section a gentle slope commences, which continues to Johnstown.

The graduation of this section is $\frac{48}{1000}$ths per 10 feet, to station 664. Thence to the end of the section, the descent will be reduced to a graduation of $\frac{35}{1000}$ths per ten feet.

Grubbing and clearing,	$ 960 00
First 27,224 cubic yards excavation, averaged at 13 cents,	3,539 12
36,383 do at 10 cents,	3,638 30
6,730 cubic yards rock excavation, averaged at 25 cts.	1,682 50
9,226 do sidelong embankment, at 12 cents,	1,107 12
4,332 do embankment, at 14 cents,	606 48
2,024 do slope wall, at 30 cents,	607 20
2 culverts at $200 each, and 4 at $120,	880 00
9 drains at $40 each,	360 00
Superstructure of 811.43 poles of rail way, at $9950 per mile,	25,230 40
	$38,611 12

SUMMARY.

Section 1st	$55,637 65
Do 2nd	99,072 69
Do 3rd	96,499 33
Do 4th	76,230 06
Do 5th	53,582 57
Do 6th	44,867 64
Do 7th	38,611 12
	$464,301 06
Superintendence and contingencies, 7 per cent,	32,501 07
	$496,802 13
Additional cost and transportation of, and charges on 6 locomotive engines,	25,800 00
Whole cost of western division,	$522,602 18

No. 1.

DOCUMENTS

Relating to the Eastern termination of the Pennsylvania Rail-way.

Report of Major Douglass' survey at Philadelphia, November 25, 1829.

The Board of Canal Commissioners of Pennsylvania.

GENTLEMEN:

In compliance with the instructions communicated by Mr. Shunk, on the 11th and 21st of August, ult. I have now the honour of reporting, for the information of the board, the result of the examinations and surveys which have been subsequently made with reference to the termination of the Pennsylvania rail road at Philadelphia.

The object of these instructions, expressed in the most general terms, was to ascertain among the various plans which had been suggested, the mode of approach to, and connexion with, the business localities of the city, which should combine in the highest degree the objects of convenience to the rail road trade, advantage to the city itself, and economy to the state: and it was made the duty of the engineer to investigate the properties of Major Wilson's location in these respects, and so to compare it with the most advantageous line that could be obtained down the right bank of the Schuylkill.

In the early stage of the survey, it was understood that this comparison was to commence at the foot of the inclined plane at Peters' farm, but the further instructions communicated on the 21st laid open the question as far back as the 7th mile stone, (Bowman's farm) on the old Lancaster road, at which point, therefore, in the order of this report, our examinations commence.

It may be proper to premise here, that the location of a rail road, as well as that of a canal, is determined by its *levels* and *lifts* with only the exception that a very slight declivity in the case of the rail road is not considered as a practical departure from the *level*. With respect to the lifts, or (in the present case) the inclined planes, it is desirable for the convenience of using them, as well as for the economy of construction, that they should be collected in considerable heights, instead of being distributed at large as in the locks of a canal. The localities for these planes require, therefore, peculiarities of shape which it is sometimes difficult to find. The gentle slopes of the country will not answer; they would make the planes too long for the convenient application of stationary power; nor will any slope answer which does not comprehend in a declivity nearly uniform, *the whole fall* intended to be overcome; otherwise heavy embankments and deep cuttings are required in carrying out the grade at the head and foot of the plane. Other conditions might be stated, but these will suffice for the present purpose, and we now proceed to the local discussion of the line from the 7th mile stone.

This point is situated near the top of the ridge, which, further west, separates the valley of the Brandywine from that of the Schuylkill, and which terminates eastwardly, in the bold elevation of Belmont (Peters') farm. *Southwardly*, it slopes off to the lower level, on which Monroe village and the Lansdown (Bingham's) woods are situated, which extends to near the margin of the Schuylkill, opposite Philadelphia From the 7th mile stone, Major Wilson's line extends in a graded level along the top of the ridge to the end, and there descends by a single inclined plane to the immediate margin of the Schuylkill, whence it may be continued by a single level along either bank to the city. Any other route would of course diverge to the right, descending first to the intermediate level just mentioned, and afterwards by a second inclined plane to the margin of the Schuylkill.

To ascertain such routes, the face of the slope was examined from Belmont to the 7th mile stone, with a view of selecting the proper positions for the planes; and two such positions were accordingly marked—one which, by possibility, *might answer*, and the other quite favourable. A line by the first of these, would diverge from Major Wilson's location at the mile stone, and follow out a secondary ridge to a head land near the Lancaster turnpike, about half a mile above the file factory, which is the position for the inclined plane first mentioned. Here the line descends into the bed of a small tributary of Crum creek, from which it may gain the level of Monroe village and the Lansdown woods, with some depth of cutting.

The line by the *other* position would turn off from the present location near George's gate, only 24 chains above the head of Major Wilson's plane, and passing down near the monument, descends at once, to the level of the Lansdown woods. The two lines come together in these woods near the turnpike gate, and thence proceed along the left of the turnpike to the position for the second descent on the grounds of J. H Powell, Esq nearly opposite Race street, where a bridge would complete either line to the city.

Both these lines have been carefully surveyed and estimated, and compared with a line by Major Wilson's plane and the right bank of the Schuylkill to the same point of termination, and the following are the results:

The *first*, viz. the line by the file factory is a mile and ten chains longer than the coterminous line by Belmont, and has about a mile and a half of very unfavourable ground, including the inclined plane. In the cost of construction, it exceeds the Belmont line by $26,829; viz. $10,760 under the head of grading, &c. $9,089 at the lowest estimate for one mile and ten chains of rails and horse path, and $7,000 for the additional engine.

The second route, viz. that from George's gate is also longer than the Belmont line by 38 *chains*, and would exceed it in the expense of construction $3,490. The cost of grading, it is true, would be $7,345 *less*, but the additional length of rails and horse path, and another steam engine amount to $10,835 *more*, and leave, therefore, the balance just mentioned in favour of the Belmont location. But the comparative feasibility of these routes is not fully comprehended in these views alone. The fuel, wear and tear, and attendance of the additional engine would cost, at a moderate estimate, $8,550 per annum, which must be defrayed by this amount of additional tolls, levied on those who use the road, unless it be paid out of the improvement fund of the state, in which case it would be equivalent to an investment of 142,500 dollars at 6 per cent. It can hardly be necessary to add to this consideration that the additional plane will also be an additional occasion of delay and embarrassment to the cars. We find, in fact, no motive on the score either of *distance*, *convenience*, or *economy*, for the choice of either of these lines, but on the contrary, it results from every view of the subject, that, even if we should choose the foot of Race street, upon other grounds, as the crossing place, the shortest, most convenient, and cheapest line of approach to it would be by the Belmont plane and the margin of the river; and the same may be said of any other crossing place further down. We return, therefore, to the comparison originally contemplated, from the foot of Major Wilson's plane to the city; and first we may designate the line down the right bank. This, on leaving the foot of the plane, comes round into its direction by a curve of 400 feet radius, and a heavy embankment, which, however, may be brought within the limit of 24 feet at the deepest part, by grading down the plane one chain further than at present, and the line itself at 30 feet per mile for 11 chains.

The embankment terminates at 17 chains. At 36 chains the line crosses a gully, with a considerable embankment and rock cuttings on both sides, and at 47 chains commences an irregular rocky slope, with growth of timber extending to the end of the 71st chain, near which the depth of rock cutting reaches nearly 20 feet. Beyond this, however, the character of the ground suddenly changes, and a short but heavy embankment becomes necessary as the line enters the ground of Mr. Breck. South of Mr. Breck, another gully is to be crossed, and the line then takes a direction near the farm house of Mr. Borie, and by a deep cutting parallel to, and near the road, reaches the crossing of Yarnal's run. This *trace* is considered decidedly preferable to that round Rundel's point. It has the disadvantage of a deep cut nearly 24 chains in length, and with an average depth of 12 feet, as the level is regulated, but on the other hand, it saves 12 chains of difficult rock cutting, and about the same in distance, and avoids entirely the sharp curve which would otherwise be necessary in turning the point. As soon as the line leaves the deep cut, it is proposed to grade it down at the rate of 20 feet to the mile, on the whole distance to the crossing place at Fair Mount. In this distance, it crosses Yarnal's run and another small run further south, nearly in the crossings of the present road, and then winding round the rocky face of Emlen's hill, comes into the position and direction of the proposed bridge, by a reversed curve of 550 feet radius, and a cutting of about 20 feet on some of the last chains.

The reasons which have induced me to make choice of this position for crossing, in preference to any one further down, may be stated as follows. In the first place, regarding the *width of the river* at the different positions; it was found to be 1249 feet, including the splatter docks on the west side, at the foot of Vine-street, 1115 feet opposite Race, and 1304 feet in the line of Arch street; while at the point proposed it is only 711 feet inclusive; and it will be seen in the course of the estimates, that the expense of construction will be nearly in the same ratio. We might indeed make the length of the bridge at either of the scites, considerably less than the quoted width, by embanking some distance on the flats; but we should gain nothing by it, as we are obliged to sustain the road at its level, and it is ascertained that the heavy embankments required for this purpose, with the necessary wing walls, would be at least as expensive as the extension of the bridge.

Secondly. In point of depth, the difference is rather in favour of the lower scites, but the bottom is much more safe for the foundations, at the position chosen, and it must be considered therefore as preferable in this respect also.

Thirdly. The relative position and direction of the bridge at Fair Mount, is much more favourable to a practical communication with all parts of the city, than either of the other. On this point, it may be proper here to observe, that the estimated completion of the rail road, almost necessarily supposes a point of termination on the Delaware, and another on the navigable water of the Schuylkill; these constituting the *port* of Philadelphia, will in fact be the primary points of termination; but it may also be remarked, that in reaching these, we may, by a judicious location of the line across the city, place the advantages of the rail road almost equally within reach of every other part. By giving that line, for instance, a position along one of the streets on the north side of the city, branch lines may issue from it, if occasion requires, at every cross street, *irrigating*, as it were, the whole city with the streams of trade which are destined to flow down this line of communication. Similar branches, extending up and down along the margin of the Delaware, together with that down the Schuylkill, will distribute no less widely the advantages of its foreign trade. A northern location for this purpose is preferable, because the ground on that side better commands the different points to which it would be desirable to run branches. It also makes the average distance less to all points, without materially increasing it to any. It interferes less with the ordinary travel of the streets, and would have more space adjacent to it for the formation of establishments suited to the nature and objects of the rail road business. In the construction of these branches, let me add, it would not be necessary to connect them with the main line by means of *curves*, which of course, would interfere materially with the angles of the streets. Swivels, connected by short sidelings, would here answer equally well, as the part of the line with which they are connected would be not so much a thoroughfare as a rendezvous for the formation and distribution of convoys. Here the locomotives would generally stop, and the cars be sent to their several destinations through the city, by draught, and so in like manner for the outward journey, they would be drawn hither from different points, car by car, and formed into convenient convoys.

With these views it will not be difficult to perceive the superiority of the crossing at Fairmount, in the respect mentioned, over those below. That of Race street for instance, would have its communication with the Delaware, through the heart of the city, exposed to the constant flow of carriages and foot passengers through all the cross streets, nor would its situation with respect to the Schuylkill be any more favourable, as it would have no sufficient space either for turning or grading down a branch, suited to the object of that connexion. These circumstances in addition to those already mentioned leave no room to hesitate in choosing the position at Fairmount, in preference to any below it.

The graduation of this crossing was originally fixed at such a height as to admit of running the branch towards the Delaware, on the line of Parke street, but it was found that in doing this it would be very difficult to grade down the Schuylkill branch with convenience to itself and so as not to interfere in crossing some of the principal streets. On this account a level is adopted by grading down the line from the deep cut, as already mentioned, so as to bring the line nearly flush with the streets at the east end of the one-arch bridge, we are thus enabled to carry it across Callowhill street, at that point and to continue it on the south side. As it approaches Washington street, the Schuylkill branch turns off to the right, and taking a straight course, nearly on the line of St. David's street, with a descent of 30 feet per mile till it reaches the grade, passes through the abutment of the permanent bridge by an arch-way, and terminates one chain beyond.

The other branch in the mean time crosses Washington street, and continues nearly in the line of its previous direction, converging towards Vine street, till it reaches the line of a small alley, parallel to, and about two chains north of Vine, which it adopts and follows out to Broad street. The grade of this line is of course undulating, but without exceeding 26 feet per mile, any where it may be very nearly accommodated to all the streets except Schuylkill 3d, where it varies about 13 feet, and will require a bridge for the street, unless the grade of the latter can be altered. Beyond Broad street, the plat of the city is favourable to the continuation of the line to the Delaware, but the estimates for this extention are not included in the present report. Rails for a branch to the intersection of Broad and Vine streets, are included in compliance with the terms of the resolution.

The cost of the line thus described may be estimated as follows:

1st. From the foot of the inclined plane to the point of crossing the river.

Excavation, viz:				
Rock,	37,706 yards	at 34 cents*	12,820 04	
Hard pan,	5,470	20	1,194 00	
Earth,	24,772	10	2,472 20	
Ditto	8,780	9	790 20	
Ditto	4,068	8	325 44	
				17,601 88
Embankment, viz:				
23,155 yards		at 14 cents,	3,241 70	
27,631		12	3,315 72	
				6,557 42
Bridges, viz: 2 of 30 feet and one of 20,			2,640 00	
Culverts, viz: 2 of 8 feet, 2 of 4 and 3 of 3,			750 00	
Drains, viz: 10 at $15,			150 00	

---

*The rate of excavation for rock, is obtained by deducting the value of the average quantity of good stone procured, from the original cost of excavation and grading.

Dry wall, 880 perches at 1 25,	1,100 00	
Grubbing, 37 chains at 2 00,	74 00	
		4,714 00
Rails and horse path, 172 chains at 101 00,		17,372 00
Total,		$46.243 30

2nd. Bridge of six spans, 2 of 90 feet and 4 of 103; the piers to be built of the best hammered rubble and set in the direction of the thread of the stream.

Preparing 7 foundations in mud or deep water, at an average of $1,200 each,		8,400 00
Masonry, viz: 11,484 perches at $4 00,	45,936 00	
2,460 2 50,	6,150 00	
		52,086 00
Superstructure, 726 feet at 30 00.		21,780 00
Embankment, 2,584 yards at 12 cents,		310 08
Rails, viz: 1140 chains at 101,		1,151 40
		$83.727 48

The estimate for the bridge at Race street, by the same scale of prices, amounts to $130,372.

3d. From the bridge to the intersection of Broad and Vine streets.

Excavation, viz. 4572 yards at 8 cents,	$366 08
Embankment, 19,051 13,	2,476 63
1 bridge,	990 00
2 culverts of 3 feet, and 20 street culverts,	1,175 00
Masonry, viz. 352 perches, at $2 50,	880 00
Rails and horse path. 99 chains at $101,	9999 00
Rails to Broad and Vine streets, 4 chains at $90	360 00
	16,246 71

4th. Schuylkill branch, commencing 26 chains from the bridge and terminating 1 chain south of the permanent bridge.

Excavation, viz. 7018 yards at 8 cents,	561 44
Embankment 25,740 yards at 13 cents,	3.346 00
Slope wall 2178 yards at $1,	2.178 00
Bridge 36 feet,	1,188 00
2 culverts, 12 and 6 feet,	1,150 00
Arch way through the abatment of the permanent bridge,	1,200 00
Rails and horse path, 59 chains,	5,959 00
	15,582 44

Aggregate for the line by Fairmount.

From the inclined plane to Fairmount,	46.245 30
Bridge and embankments,	83,727 48

Delaware branch to Broad street,	16,246 71
Schuylkill do	15,582 44
	161,801 93
Contingencies,	16,180 19
	177,982 12
Damages as assessed by Mr. Charles Roberts,	4,100 00
Total,	$182,082 12

Line crossing at Peters' island.—A very few words will serve to designate this line, and to show the manner in which it may be conformed to the views already suggested with regard to the ultimate termination of the rail road. It crosses the river immediately in front of the inclined plane by a bridge of 7 spans, and 824 feet between the abutments, and passes at once into the bed of the Union canal. The graduation of the bridge is taken at 7.5 feet below the foot of the present plane, of which 4.5 are obtained by grading down the plane, as was done for the other line, 1 chain beyond its present termination. After crossing, the line again rises by a gentle countergrade 2.5 feet, and then continues level to the 4 Nations Hotel. Here a slight depression is introduced in crossing Francis street, (which may be accommodated by the ground on either side of the hotel) and about the same point, the two branches for the Delaware and Schuylkill fronts divide. That for the Schuylkill turning into the direction of Fairmount street, continues down it to the vicinity of Callowhill; it then curves into a direction parallel to the latter, crossing it at the same time, and as it approaches Washington street, again curves to the right and takes up the line and direction of St. David's street as in the former case; and in like manner passes the abutment of the permanent bridge by an archway. This location enables us to avoid all inconvenience of the least account, at the intersection of the streets. Along the margin of the Fairmount property and its vicinity it is protected, of course, from such intersections. Hamilton and Callowhill streets are paved by bridges at a low level, and with sufficient distance between those crossings and the permanent bridge to grade down and pass the abutment of the latter by the archway as heretofore explained.

The Delaware branch of this line resumes its level after the intersection of Francis street, and may either continue level or be conformed to the different streets, to Broad street. In the estimate it is supposed to follow the line of the canal to its intersection with Parke street, and thence along that street to its termination on Broad street; but it is suggested that an important improvement may be made in the plat of that quarter of the city, in connexion with a more elegant, and in other respects more desirable location, for this part of the road; viz: by opening a spacious level avenue in a direct line from the vicinity of the 4 Nations Hotel, through the intersection of Morris and Washington streets, and so to Parke street; and thence communicating with Callowhill either directly, or by Schuylkill 2d. In that case the rail road would occupy one side of this avenue, to its intersection with Parke street, and then by the latter as before. Many points of interest connect themselves with the improvement here mentioned, but which it will not be necessary to comprehend in this report.

Estimating the line just described by the same scale of construction and prices as that used on the Fairmount line, its cost will be as follows:

1st. From the foot of the inclined plane to the bridge inclusive.

Embankment, 15,726 yards at 14 cents,		$2,341 64
Foundations, 7 piers and abutments at $500,		3,500 00
Masonry, 9784 perches at $4,	$39,136 00	
do 1366 perches at 2 50,	3,415 00	
		42,551 00
Superstructure, 846 feet,		25,380 00
Rails and horse path on 1100 chains at $1 01,	1,121 10	
Rails on 1248 chains, at 88 cents,	1098 24	
		2,219 34
		$75,991 98

2. From the bridge to the separation of the two branches.

Excavation, viz:

Rock, 8536 yards at 30 cents,	2,560 80	
Earth 20,347 do at 8 cents,	1,627 76	
		4,188 56
Embankment, 9328 yards at 11 cents		1,026 08
2 culverts and 3 drains		235 00
Rails and horse path, 138.42 chains at $101,		13,980 42
		$19,430 06

3. Delaware branch to the intersection of Broad street, with a lateral branch to the intersection of Broad and Vine.

Excavation, viz:

Rock, 5210 yards at 30 cents,	1,563 00	
Earth, 12,202 yards at 8 cents,	976 16	
		2,539 16
Embankment, 9988 yards at 11 cents,		1,098 68
Culverts, 1 of 6 feet, 1 of 3 feet, and 12 street culverts		790 00
Rails and horse path, on 97 chains at 101,		9,797 00
Rails for Branch to Broad and Vine streets 11 chains at $90,		990 00
		$15,214 84

4. Schuylkill Branch.

Excavation, viz:

Rock, 1640 yards at 30 cents,	492 00	
Earth, 12,740 yards at 8 cents,	1,019 20	
		1,511 20

Embankment, 36,004 yards at 12 cents,	4,320 48
Bridges, viz: 1 of 3, 40 feet spans and 2 of 36 each,	5,700 00
Culverts, 1 of 12 feet, 1 of 6, 2 of 1½ and 2 drains,	1,280 00
Slope wall, 2178 yards at $1,	2,178 00
Archway through the abutment of the bridge,	1,200 00
Rails and horse path, 86 chains at $101,	8,686 00
	$24,875 68

Aggregate for the line by Peters' island.

Bridge and embankment on west side,	75,991 98
From the bridge to the fork of the branches,	19,480 06
Delaware branch,	15,214 84
Schuylkill branch,	24,875 68
	135,512 56
Contingencies,	13,551 26
	149,063 82

Comparing these two lines with regard to their *expense*, we find from the estimates given, a balance of $33,018 30 in favour of that which crosses at Peters' island. With regard to *distance*, the same line has an advantage of 14.40 chains in reaching Broad street, and of 20.40 in reaching the permanent bridge. In point of *rise and fall* it has also the advantage by 34 feet on the line to Broad street. Lastly, in point of *convenience* for connexion with the various localities of the city, it is thought also to have the advantage, as conforming more nearly with the views already suggested on this point, and particularly in being more apart from the ordinary travel of the streets.

It remains only to comply with that clause of my instructions which requires an estimate of a line from the inclined plane to the navigable waters of the Schuylkill, on the west side.

From the foot of the plane to the crossing place at Fairmount, already estimated at		$46,245 30
Thence to a point 1 chain south of Market street		
Excavations, viz:		
Rock, 2516 yards at 31 cents,	779 96	
Earth, 15,268 yards at 8 cents,	1,221 44	
		2,001 40
Embankment, 10,472 yards at 12 cents,		1,256 64
Culverts, viz: 1 of 8 feet, 1 of 4, and 2 drains,		390 00
Rails and horse path, 64 chains, at $101,		6,464 00
		56,357 34
Contingencies,		5,635 73
		$61,992 07

All which is respectfully submitted.

D. B. DOUGLASS,
Prof'r. Engineering U. S. Military Academy.
West Point, 25th *Nov.* 1829.

No. 2.

Charles Robert's report on damages.

I have examined the grounds on all the proposed routes for the contemplated rail road on both sides of the river Schuylkill, as designated in the letter of instructions, and am of opinion. that taking the benefits and disadvantages into view, the following are the only estates on the different routes which would be entitled to damages, viz:—

Bingham's, (Landsdown,)	$300
Breck's,	1000
Borie's, (late Rundle's,)	800
Penn's,	300
Yarnall's,	300
Emlen's,	1000
Harding's,	400
	$4100

Philadelphia, 9 *mo* 17, 1829.

CHARLES ROBERTS.

Major Douglass, West Point.

No. 3.

Cessions of Property.

In case the rail road contemplated by the State of Pennsylvania passes down the *centre* of Parke street, from Schuylkill Fourth street, to the *centre* of Broad street, no damages will be claimed for the owners of the Bush Hill estate, represented by me, provided the width occupied by the road, does not exceed twenty-five feet.

T. CADWALADER,
23d *September*, 1829.

In case the rail road passes along the middle of Parke street, from Schuylkill Second, to Schuylkill Fourth street, and the present bed of the union canal is vacated, no damages will be claimed by the subscribers and those whom they represent, for any property within those limits—provided the width taken does not exceed twenty five feet.

HENRY J. WILLIAMS,
ROBERT EARP,
THOMAS EARP.

The owners of the Morrisville estate, agree not to claim damages for the ground occupied by the Pennsylvania rail road, between Francis street and the corner of Parke and Schuylkill Second streets, belonging to them, provided the said road crosses the

Schuylkill at Judge Peters' farm, and either passes on the present bed of the union canal, or (if it should take through their property a different course,) that the said bed of the union canal be vacated, and that the said road does not exceed thirty feet in width.

H. J. WILLIAMS, *Agent.*

September 22, 1829.

No damages will be claimed for the passage of the rail road through the farm called Mount Pleasant, about 2½ miles from Philadelphia, provided the ground occupied by the rail way and common road does not exceed one hundred feet.

H. J. WILLIAMS.

September 22, 1829.

Philadelphia, Sept. 23*d*, 1829.

The undersigned hereby relinquish to the commonwealth the soil, and all claims for damages which shall be necessary, or which shall arise in the location or construction of the Pennsylvania rail way, on their property in Blockley township.

Signed
ROBT. HARE.
JOHN HARE POWEL,
for himself and ALEXANDER BARING and HENRY BARING.
E. S. BURD,
LEONARD FRAILEY.

On behalf of the Trustees of William Bingham, Esq. of Montreal, I hereby relinquish to the commonwealth, the soil, and all claims for damages, which shall be necessary, or which shall arise in the location or construction of the Pennsylvania rail way, passing through their estate in Blockley, adjoining Powelton, and Richard Harding's land, provided the said rail road passes along the line staked out by Major Douglass, or adjoining, and along side the county road.

True Copy Signed,
ALEXANDER BARING, *by his Attorney.*
RICHARD WILLING,
RICHARD WILLING.
Trustee of William Bingham of Montreal.

JOHN HARE POWEL.

Mr. Wetherill who owned a piece of land adjoining Walnut street, on the western side of the Schuylkill, on Wednesday night last, authorised me to say, that he would relinquish damages. On the next evening I called at his house, with the paper of which a copy is annexed—when he was too ill to be seen on business. On the next afternoon he died.

J. H. P.

2819-65